Schoenberg's early Lieder, Opp. 6 and 8 : a theoretical perspective

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Abstract

The use of technical analysis in discussions of music in general and song in particular has been the subject of increasing scepticism in musicological research in recent years. Yet throughout the history of western music, theories which are essentially technical in nature have shaped the views of composers as well as musicologists. A particularly cogent illustration can be found in the figure of Schoenberg, one of the twentieth-century's most influential composers who remains one of its most enduring theorists. Despite the ongoing publication of his theoretical and analytical writings there remains limited research into the interaction between his theories and the early compositions that mark the 'pre-atonal' period; research which potentially positions technical analysis as an important source for the interpretation of the musical text. The current study seeks to redress this balance by examining Schoenberg's theories of harmony and motif in the light of the *Lieder* of Opp. 6 and 8 (1903-1905), which mark the composer's return to Vienna from Berlin. When examined as a group, these *Lieder* have not been well represented in the analytical discourse to date. The perspectives offered by Schoenberg's theoretical writings are contrasted with those generated by a development of pc-set theory which has hitherto received only limited attention: pc-set genera.

The earlier chapters therefore address theoretical issues: Chapters 2 and 3 focus on Schoenberg's writings in order to establish a technical framework for analytical discussions based on Schoenberg's writings, while Chapters 4 and 5 expand and develop existing pc-set genera theory (defined by Forte, Parks and Kennett) in order to support a generalised model of the concept. A computer program, designed and written by the author, has therefore been used to assist with the theory and the analyses which follow, and is included within the thesis.

The thesis ultimately presents the case that detailed technical analysis, when sufficiently contextualised, represents a necessary precondition for the interpretation of song, and for the understanding of the music's evolution.

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... And perhaps a note of thanks too to an old aunt who taught me that one should always finish, no matter how long it takes, that which one starts.

Preface

This thesis is presented in two volumes and includes a CD-ROM. The first volume contains the text for the thesis and the bibliography. After the introductory chapter, four chapters outline the theoretical perspectives on which the analyses are based, while the analyses are spread through the subsequent three chapters: Chapter 6 consists of the *Lieder* written between December 1903 and April 1904; Chapter 7 comprises the three Petrarch *Lieder*; and Chapter 8 consists of *Sehnsucht* and the last four Op. 6 *Lieder*. A final chapter presents the conclusions and the bibliography. The text makes extensive reference to the second volume which contains the musical examples and pc-set genera matrices. It also contains four appendices. A CD-ROM is included as part of the second volume and comprises the computer program that is associated with the pc-set genera analyses.

In the thesis, the term 'Example' refers to an example that is found in Volume 2. The terms 'Fig.', 'Diagram' and 'Table' refer to shorter examples, which appear within the analyses in Volume 1, normally in close proximity to the reference.

A basic knowledge of pc-set theory is assumed. The terminology used for pc-set theory is the standard as defined by Allen Forte in *The Structure of Atonal Music* (Forte 1973).

In addition to the abbreviated book titles noted in the bibliography, the following commonly-used abbreviations have been adopted: 'pc-set' is used for 'pitch-class-set'; 'pc' for 'pitch-class'; 'ic' for 'interval-class' (which in turn distinguishes the term from the names of specific genera, which are identified by a capitalised form, as defined in Chapter 5); 'RH' for the 'right hand' system in a piano score; and 'LH' for the 'left hand' system in a piano score. The term 'motif' has been preferred to 'motive', although where a quotation is cited, the form of the word in the original text has been used.

Schoenberg's collected works, the *Sämtliche Werke* (Mainz and Vienna: Schott and Universal, 1966–), have been consulted for all of the analyses. In Op. 8, Webern's reductions for piano and voice has been used to assist the production of the musical examples in some cases, but the full scores have also been consulted.

The examples have been prepared by myself using Finale (Coda Music Technology). The computer program on the CD-ROM has been written solely by myself.

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Chapter 1: Introduction

In a provocative and perhaps undervalued article, which begins with an assessment of 'four models for the analysis of song' and concludes with a proposal for that genre's Schenkerian poetics, Kofi Agawu makes the following observation:

> While analysts who focus on the music and ignore the text could be accused of overlooking an indispensable part of the work of art, those who adopt a musico-poetic framework from the beginning frequently miss – or ignore – any aspects of the musical structure for which analogies with poetic processes cannot readily be found.[1]

Thus in the text-versus-music debate, Agawu identifies risks in respect of both strategies, yet one could argue that those who take as the starting point the confluence of words and music, are potentially at greater risk of misconstruing their subject, as their failure to address adequately the musical structure (the musical language) renders any observations about meanings of words which are reflected in the music (or vice-versa) as suspect.

Indeed, of the 'four competing models for song analysis' that Agawu identifies, it would appear that Suzanne Langer's position (representing the 'assimilation model' whereby music is deemed to have assimilated words into its own domain)[2] is the closest to which he himself subscribes. Significant caveats are identified, such as the unclear status of the words (that constitute the poem's previous mode of existence) in the final (musical) work. Yet by taking into account the other models, Agawu's final pragmatic proposal finds that a music-theoretical approach (in his example a Schenkerian analysis) precedes, and in fact is a necessary pre-condition for, an interpretation of the text of the work in the terms offered by the output of the musical analysis. Agawu's argument is particularly relevant to the current study, as it presents a strong case for undertaking theory-based analysis of song, a practice which he finds to be 'notoriously lacking in models'.[3]

One monograph not cited by Agawu, which does seem to fall within the category 'theory-based analysis of song', is that of Deborah Stein in which she offers a study of selected Wolf *Lieder* that is rooted in the Schenkerian tradition.[4] Stein traverses the tightrope between Schenkerian

1. Agawu 1992: 23.
2. See Langer 1953.
3. Agawu 1992: 3.
4. See Stein 1985.

orthodoxy and the theoretical expansion necessary to capture Wolf's specific harmonic style with remarkable care, ultimately inviting comparisons with Katz's pioneering work in expanding Schenker without sacrificing the essence of his theory.[5] Yet Stein's work demonstrates, indeed, her central thesis contends, that the retaining of the rigour and consistency of a theoretically oriented approach still yields significant results in the interpretation of the texts.

Nevertheless, to concur with Agawu, a viewpoint such as Stein's is very much the exception rather than the rule and, moreover, the ten years since his article appeared have failed to yield a new practice of either his 'informal method for analysing song' or any development of the content of the section 'Towards a Schenkerian poetics of song'.

Agawu's viewpoint resonates with a recurring thread that one can identify in Schoenberg's own writings. Consider the following famous passage from the article 'Relationship to the text' which Schoenberg originally penned in 1912 for the journal *Der blaue Reiter*, that was co-edited by Kandinsky:[6]

> For me ... inspired by the sound of the first words of the text, I had composed many of my songs straight through to the end without troubling myself in the slightest about the continuation of the poetic events, without even grasping them in the ecstasy of composing, and that only days later I thought of looking back to see just what was the real poetic content of my song. It then turned out, to my greatest astonishment, that I had never done greater justice to the poet than when, guided by my first direct contact with the sound of the beginning, I divined everything that obviously had to follow this first sound with inevitability.[7]

Thus Schoenberg's compositional view of the relationship between music and text, expressed in straight-talking and unambiguous prose, falls heavily on the side of musical assimilation – an endorsement of Agawu's position. The passage dates from a period relatively close to the *Lieder* that form the content of the current study although, given their mention in the following

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5. See Katz 1945. Katz is often cited in the context of discussions on dissonant prolongation, in which commentators and critics tend to discuss Katz alongside Salzer without sufficiently examining the distinctions (see, for example, Baker 1983b and Morgan 1976). Yet the detail suggests that the two are remarkably different (see Dunsby and Whittall 1988: 55-56) – for example where Salzer forgoes Schenkerian-style fundamental structures (thus ultimately altering the underlying notion of prolongation), Katz, like Stein, remains faithful to fundamental structures, arguing through demonstration that they remain relevant in the music of Schoenberg, Stravinsky, Debussy, Bartók and others, and that the areas which are less convincingly portrayed by such models, are those where deviation from the traditional harmonic norm and modernist harmonic process (of varying forms) begins to take root.

6. Kandinsky and Marc 1912.

7. The translation which is quoted here is from Schoenberg 1975: 144.

paragraph, it may well be that the short essay was compiled with the recently-composed Op. 15 George *Lieder* in mind, rather than the earlier Opp. 6 or 8, the subjects of this study. The polemic of 'The relationship to the text', has inspired reaction which ranges from outright dismissal by Dahlhaus (on the basis that the settings of the George *Lieder* ostensibly demonstrate otherwise),[8] to recent support from Vilain arguing that (1) within the original context, an expressionist journal, the exaggerated separation of music and text is understandable; and (2) that in some cases the 'incantatory quality' of (some of) the George *Lieder* suggest the 'gist' of Schoenberg's remarks is justified.[9] The irony is that both authors relate their viewpoint to the George *Lieder*, yet the polarity might well be accounted for by the respectively distinct perspectives offered by musicology and literary criticism, as well as by the 'old' and the 'new' musicology. Vilain's contextualisation of Schoenberg's essay shows it to be underpinned by a representation of music as an independent and autonomous unit within the larger-scale consideration of song, and this is a view that may well extend beyond the George *Lieder*, as Schoenberg does not seem to have revised it in later writings. Thus some twenty years later when he writes of how he believes the text and vocal line interact in his music, it is clear that Schoenberg envisages that text is underpinned by a music-based formal model:

> I make it my task to arrive at a vocal line that bears within it the text, the stage, the characters, the décor, the music, and everything else that is expressive, while still unfolding purely in accordance with musical laws and musical demands ... Moreover, the whole form, and each of its details, must be an invention of the vocal part or of the principal voices in the musical theatre.
> Today thanks to Wagner, that is possible. We have learned how to assemble a vocal part from elements which are so flexible, and so amenable to transformation, that we can still always achieve a clear overall form - or, indeed, constant repetition of the same form, as, for example, with a strophic layout, or parallel forms of some other kind. What helps us here is the art of variation - the mentor of our thinking, and of the listener's too.[10]

At the very least, Schoenberg believes a coherent form is discernible through consideration of the music alone. The basis for this is the freedom created by Wagner's innovative approach to the composition of the vocal line. On the related matter of text expression, the following passage, from the radio talk on his Op. 22 *Lieder* of two years later, takes up the theme of text representation, and confirms Schoenberg's belief that his music represents a departure from tradition.

8. See Dahlhaus 1987: 85.

9. See Vilain 2000: 21-22. Vilain points out that his paper presents the perspective of the literary scholar (see p. 1).

10. Schoenberg 1975: 106.

> 'Wilde See', 'Fahrt', 'Finstrer Sturm', 'Weh' - these are words whose representational impact hardly any composer from Bach to Strauss could have resisted – words which could not simply glide past without being reflected by some musical symbol. And yet this place affords a very telling example of a new way to deal with such images...it had apparently been thought that I took no notice *whatever* of texts, since with me they no longer give rise to sounds like a storm or swords clashing or sardonic laughter. This impression was exaggerated to such a degree that music was composed to *no* text, or at best to a text *other* than the one which was actually being sung. My music, however, took representational words into account in the same way as abstract ones: it furthered the immediate, vivid rendering of the whole and of its parts, according to the measure of their meaning within the whole. Now if a performer speaks of a passionate sea in a different tone of voice than he might use for a calm sea, my music does nothing else than to provide him with the opportunity to do so, and to support him. The music will not be as agitated as the sea, but it will be *differently* so, as indeed, the performer will be...a word describes an object and its state; a film reproduces it without color, and a color film would reproduce it without organic life. Only music, however can bestow this last gift, and that is why music may impose a limit on its capacity to imitate – by *placing* the object and its being *before* the mind's eye, through performance.[11]

The idea that music is an organic whole imbued with a structure that is (or at least can be viewed as) independent from the text it sets, can be found throughout this passage. Initially it addresses the charge that his music has nothing to do with the text by pointing out that the relation between whole and parts in respect of a given text, is echoed in the structure of his music. In this way his music differs from the representational techniques used formerly. Moreover, because of its capacity to bestow 'organic life', music adds a dimension to which other forms of expression cannot aspire and in this context (i.e. the most recent developments fashioned by himself) it would be inappropriate to accede to techniques of mere imitation. Whether or not one agrees with such a view – and it is useful to recall that the context is a radio talk in which Schoenberg is trying to 'sell' his Op. 22 *Lieder* to a wider unsupportive audience – it is clear that Schoenberg regards the musical dimension of his *Lieder* as autonomous and capable of being coherent on its own terms.

Thus, if Schoenberg's own views underline his belief in the autonomy of musical structure within his *Lieder*, and Agawu has laid out the grounds upon which such studies might proceed, then why are there not more theory-based approaches to their analysis in the recent literature? One reason might be found in the emergence of the so-called 'new musicology' which has ensured that any fundamentally theory-based undertaking tends to be shrink-wrapped in caveat and context (if not

11. See Schoenberg 1968: 31-32. The radio talk was written in 1932, and the italics in the text represent emphases which Spies, the translator of the published version of the talk, identifies.

apology)[12] and that, moreover, recent studies of Schoenberg *Lieder* have tended to be oriented around text rather than any consistent theoretical approach.[13]

Accordingly, a recent collection of essays titled 'Schoenberg and Words'[14] seeks to foreground the study of the texts which Schoenberg set (and what they suggest) in order to present Schoenberg's musical development through his literary preferences and philosophical influences against the background of the social and political issues of the day.

Music-based analysis (often by reference to extant studies) is used ostensibly to support the focus on textual, literary and philosophical concerns generated by the texts,[15] yet often these analytical fragments tend to become anecdotal rather than supportive.[16] Within the two papers which relate to the repertoire discussed here, the absence of consistent theoretical viewpoints in the short technical analyses presented (or alluded to), tends to raise more questions than it answers, thus in a sense failing to provide a consistent resource that might support the sometimes intricate arguments that address context and philosophical concerns. Street, for example, focuses on Forte's idea of the 'Schoenberg signature' at various times in his discussion without reference to the issue of set-consciousness within which Forte originally framed his thesis. Thus without the apparatus of set theory to support it, the random observation of eight-note groups in a repertoire famed for its use of chromatic material begins to look a little stretched: Street expands Forte's identification of the signature grouping in *Alles* and *Der Wanderer* to include the opening of *Mädchenlied* (minus the F♯ of bar 1) and the 'identifiable harmonic inflections' of *Lockung*.[17] In the latter it is not at all clear on what grounds Street identifies harmonic inflections, but they apparently do not include the fifth-related harmonies built on A♭ and D♭ (which appear in bars

12. See for example Deborah Mawer on Milhaud (Mawer 1997) and Michael Russ's review (Russ 2000).

13. See, for example, Brown 1993.

14. Cross and Berman 2000.

15. See in particular Brian Campbell on *Gurrelieder*, Elizabeth L. Keathley on *Erwartung* (Cross and Berman 2000: 31-63 and 139-177 respectively) as well as Street 2000 and Holzer 2000, discussed below.

16. For example, the passage which gives rise to Holzer's exposition on cellular motivic connections in respect of *Voll jener Süße* (Holzer 2000: 78-80) is later positioned as '*leitmotivic*' (p. 87), yet this is not framed within the Brahms-Wagner polarity which he discusses in terms of the discourse surrounding the first quartet. Street lists the analytical studies of his subject, Op. 6, at the outset of his discussion (Street 2000: 105-106), and although he draws upon part of Forte's argument regarding the signature set, he never fully relates this material (positively or negatively) to his own thesis.

17. See Street 2000: 108-110.

7-9, but also lurk around bars 58, and 51-2 as well), nor does it include F♯ (bars 39-41), and the F♮ that Street does acknowledge as standing outside the signature collection.[18] Thus Street's representation of the signature's instantiation as supplying a technical representation of the 'integration' that underpins his argument that the Op. 6 group is in fact an integrated cycle (the narrative of which can be constructed through close reading of the texts and the philosophical influences), is seriously undermined by the fact it appears in just three out of the eight songs. For Forte, however, the instances of the (untransposed) signature group represented a pointer to the potential structural importance of the notion of an unordered set of notes (a pc-set) to a work. The use of pc-sets themselves is later dismissed by Street on the grounds that its theory is 'at best abstract and at worst anachronistic',[19] yet one cannot help but wonder how the idea of the signature can be completely divorced from the notion of pc-set.

By examining this issue in some detail, it is not my intention to undermine the work of the new musicologists such as Street, as it is clear that there is much that can be uncovered by examining the texts of Schoenberg in a cultural and philosophical context;[20] rather, it is to suggest that such work would benefit from allusion to a stronger theoretical framework when the underlying music is being addressed analytically.

Indeed, returning to the lack of theory-based analysis of *Lied*, one could argue that any dismissal of theory-based approaches is not entirely consistent with the aims of a 'post-modern' musicology, one of the objectives of which might be described as seeking to (re-)assess music in

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18. This is not the only instance of Street's tendency to be somewhat selective in using analysis to support his argument. Following Adorno's observation that a direct quotation of elements of *Am Wegrand* occurs in *Erwartung*, (corresponding with Pappenheim's reference to the Mackay text which the former sets) Street attempts to make connections between *Der Wanderer* and *Erwartung*, by identifying notes and harmonic events of the former through picking out notes within a short passage in the latter. The *ad hoc* nature of this selection process is perhaps questionable and, unlike the case of the signature, the metaphorical link that describes the reference is (by his own admission) obscure. See Street 2000: 122.

19. Street 2000: 127.

20. It should be noted that Street is, perhaps, one of the more radical exponents of what might be called the theoretical division of the 'new musicology'. Nevertheless, one has to question, given the complexity of his dialectic in this article in particular, whether, with so many strands of philosophical thought gathered together in order to discuss Schoenberg's text selection, the hermeneutical endeavour is weakened – there comes a point when he has established so many themes in the texts, and discusses so many strands of philosophical thought, that one feels that any text could be connected with any philosophical strand. This is ironic, as his starting point (Street 1987) was that conventional music theory tends to be much too positivistic to underpin a sufficient hermeneutic strategy.

the context in which it was conceived and composed. Schoenberg was a competent writer and famously eager to take part in the contemporary theoretical debate. Thus, while Schoenberg's poetics might well be dismissed on the grounds of inconsistency,[21] or perhaps imbued with separate agendas, a post-modern analytical enquiry should be prepared at least to take into its account (if not start from) the possibility that the interaction between Schoenberg-the-theorist and Schoenberg-the-composer be taken on face value. After all, to take an example, even if 'structural listening' has been deconstructed by current discourse, and revealed as fraught with contradictions,[22] it remains a principle which Schoenberg believed to be true and one which surely informs his compositional process, just as does his conception of 'organicism' and the pursuit of unity,[23] alongside the technical procedures he describes such as 'developing variation' and 'composition with twelve tones'. The same argument is clearly valid for the relationship between text and words.

Thus, to return to the question of an appropriate analytical strategy for the consideration of Schoenberg's *Lieder*, having established the validity of, and need for, a theory-based approach, the question of which particular approach (or approaches) would be most suitable for an extended study remains unanswered. Schenkerian theory, which was used by Agawu and Stein, appears to be inappropriate (as it stands) in addressing the chosen repertoire on account of the lack of clearly articulated structural dominants that would support the descending lines that the theory identifies. Although recent discourse notes the demise of the steady stream of discussions on 'dissonant prolongation' and 'atonal voice-leading'[24] that, following Salzer's extensions of Schenkerian theory in the 1950s,[25] flourished during the late 1970s and throughout the 1980s,[26] the general literature pertaining to this area of research is steeped in vigorous debate, and a

21. Street, for example, cites 'The Relation to the Text' and the article 'A Self Analysis' as indicative of the composer's ambivalence towards word setting, rather than deconstructing or contextualising Schoenberg's rhetoric. See Street 2000: 114.

22. For discussion and critique of structural listening, see Subotnik 1996: 148-176. Her conclusion is that 'the concept of structural listening ... is deeply flawed by inconsistencies between what it promises and what it delivers' (:175).

23. See Webern 1963.

24. See Dunsby 1999: 264; 266.

25. See Salzer 1952.

26. See, for example, Morgan 1976, Baker 1983b, Ayrey 1982, Smith 1981 and Smith 1986. For an alternative line of thought on the issue, see also Forte 1987 and 1988b. Nevertheless, the literature on dissonant prolongation is large and varied. A particularly useful perspective (and system of classification) is suggested by Straus (Straus 1997, see particularly the mini-bibliography supplied in the somewhat extended footnote 1, pp. 237-238).

landmark study by Straus appears to have dampened the enthusiasm for (if not the viability of) the concept.[27] Moreover, it appears that Schoenberg himself was uncomfortable with the concept of prolongation as suggested by the non-harmonic tones chapter of *HL*,[28] and any study which sought to take into account Schoenberg's writings while still supporting a theory of dissonant prolongation would (at best) become severely theoretical, and limited in its analytical scope.

One theoretical approach which is potentially appropriate to the repertoire in question is that of pc-set theory. This appropriateness is enhanced by the fact that early pc-set theory positioned Schoenberg's Op. 6 *Lieder* as the point at which Schoenberg became conscious of the notion 'pc-set', because of the recurrence of certain sets in these works.[29] Forte's article has been criticised recently,[30] and it seems appropriate that a form of re-evaluation be undertaken on the basis of a close technical study. Moreover, pc-set theory itself has moved forward in recent years,[31] and one particularly interesting strand of development sees the attempt to classify pc-sets into 'genera'. Parks's and Forte's original articles, alongside more recent studies of Kennett and Ayrey,[32] have demonstrated the usefulness of pc-set genera in analysing music which remains predominantly triadic, yet not necessarily tonal, and so it would appear appropriate to use the theory in the context of Schoenberg's Opp. 6 and 8.

However, a significant problem emerges from the lack of a common practice of pc-set genera analysis as Parks's and Forte's theories offer distinct versions,[33] while Kennett's studies offer an expansion of the theory based on Forte's model.[34] Thus, an appropriate task of any extended study relating to genera will be to identify the distinctive and common aspects of the extant theories with a view to proposing a potential common practice and developing the theory further. Two chapters of the current study are therefore devoted to this task. In Chapter 4, the

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27. Straus 1987. This point is developed further in relation to Schoenberg's harmonic thinking in Chapter 3: 58.
28. Schoenberg 1978: 309-344. An early discussion of this issue is available in Dahlhaus 1987: 134, but see also Wintle 1982 and Borio 2001.
29. *Pace* Forte 1978a.
30. See Frisch 1993: 216; 270, and Simms 2000: 80.
31. See Pople 1998.
32. Parks 1989, Forte 1988a, Kennett 1995 and Ayrey 1998.
33. The original sources are Forte 1988a and Parks 1989. Some of the distinctions are noted in Kennett 1995, Ayrey 1998 and Parks 1998a.
34. Kennett 1995 and Kennett 1998a.

three existing theories of pc-set genera are examined, the areas of common ground are identified, and the 'generalised theory', representing a significant development of existing material, is presented. Chapter 5 is devoted to presenting how the generalised theory of genera has been applied to the music, firstly, focusing on some of the algorithms which underpin the computer program devised to assist the analytical process, and secondly, examining the genera themselves and how the analysis will proceed.

Although it is clear that set theory and the genera of pc-sets will offer a useful perspective, the question of whether it would be sufficient 'on its own' as an analytical strategy in a repertoire in which tonal process and motivic manipulation are clearly evident, is open to debate. For a further theoretical perspective that might taken into account harmony and motif, it would seem appropriate to look to the writings of Schoenberg himself.

A recent article by Haimo attempts to match Schoenberg's early music with his writings by identifying how:

> ... three basic ways in which Schoenberg's theory of tonality, as expressed in the practical sections of the *Harmonielehre*, can cast light on the origins of atonality through his concept of harmonic progression, through his notion of the hierarchy of the diatonic collection and through his procedures for chord formation.[35]

While not seeking to undermine the broad thesis which underpins Haimo's three points, (i.e. that close study of materials like *HL* provides keys to the theoretical basis for Schoenberg's atonal music) some of the detail of Haimo's argument warrants attention. In respect of chord progression, Haimo argues that in the earlier chapters of *HL*, Schoenberg ignores demonstrations of tonics established by progressions of directed harmonies in order to promote his theory of strong, weak and super-strong progressions (illustrated by the 'aimlessness' of Schoenberg's chord progressions as other theories of tonality would consider them to be);[36] yet this is highly debateable,[37] as is his example which questions whether Schoenberg's theory allows one to

35. Haimo 1997: 74.

36. See Haimo 1997: 74.

37. See, for example, Schoenberg 1978: 32-33 in which Schoenberg discusses in some detail the role of the tonic and dominant in the context of tonal music. Moreover, while it is true that Schoenberg spends the early part of *HL* (Chapters IV to VI) focusing on chord progression, the idea of 'tonic and dominant' is never far from Schoenberg's discussions, and one could understand this as his strategy for getting the student accustomed to working with voice-leading before presenting a greater focus on tonicity and how it can be achieved. Thus the chapter on cadence (which is mentioned by Haimo) follows. At the outset of Chapter IV: 'Major Mode: Diatonic Chords' he

identify the tonic in *Mädchenlied*, if one were to consider bars 2-7 out of context (refer to Example 12.2 in Vol. 2). After all, Schoenberg discusses the tonic-seventh chord, specifically in the case of the minor key, and one can deduce such a construct in E minor by aggregating the notes of the vocal part in bar 2-3 (while the E minor tonic seventh is arpeggiated in the RH piano part at the beginning of bar 3).[38] Moreover, the dominant-type chord in bar 5 (in the context of a Neapolitan A♭) is suggestive of G minor (or perhaps G major), the latter of which Schoenberg identifies closely with E minor.[39] E minor would thus be at least one of the candidates for tonicity that one might consider if this 'out-of-context' passage were to be scrutinised using *HL*. Even if not, then G minor's temporary tonicity was well anticipated by the disruption created by A♯ (B♭) and D♯ (E♭) in bars 2, and the overall sense of the half-diminished-seventh on A (and its encapsulation of a C minor triad) in bar 3. Both possibilities (E minor or G minor) point to some form of appreciation on Schoenberg's part for how chord progressions establish tonicity, and suggest that the issue of how atonality emerged from such music is a little more complex than Haimo presents here.[40]

Haimo illustrates his second point from the above quote by isolating Schoenberg's explanation of the source of secondary dominants from *HL* in which he finds that the five chromatic tones can be used 'as functionally equivalent replacements for any of the seven diatonic tones at any time and in any place'. Although the essence of Schoenberg's explanation of chromaticism is not in dispute, nor are its ultimate ramifications for atonality, Haimo does not sufficiently represent its full context in which the historical perspective that Schoenberg affords his theory is all too evident.[41] Indeed, in *HL* Schoenberg encourages the student to 'follow the historical evolution',[42] yet throughout the chapter Schoenberg critically examines the resultant chord progressions with

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speaks of the importance of the study of tonality and how to bring about its 'effect' (Schoenberg 1978: 27). That Schoenberg appreciates that the 'effect of tonality' is something to be (optionally) established by chord progression/succession, suggests that Schoenberg was aware of the importance of tonal definition by chord progression.

38. Schoenberg 1978: 365.

39. That is on account of the intermediary G major, tonic major of G minor and relative major of E minor. See Schoenberg 1978: 154.

40. The alternative suggested by this study, and there is evidence from the *Mädchenlied* example to support this, is that Schoenberg tended to represent tonicity (and its extensions) in terms of aggregations of notes that would in turn represent scale and key. Traces of this exist in his music and writings. The point has been suggested (without detailed illustration) before in Dunsby 1982 and in Dunsby and Whittall 1988: 77, and will be developed further below (see Chapter 3: 67).

41. See Schoenberg 1978: 176-187.

42. Schoenberg 1978: 176.

a view towards the effect on the tonicity (in the form of 'modulation') of the passage. Haimo's illustration (*Traumleben*) by his own admission fails to exemplify a freely-formed chromaticism that emerges from a diatonic core, and in view of the discussion of the chromatic notes in the *Mädchenlied* example presented above, there is evidence to suggest that such chromaticism often emerged as part of a carefully worked (or intuited) sub-structure of musical coherence that invoked the complicity of harmonic and melodic concerns.

Haimo's third point regarding the method of chord formation is inextricably bound up with Schoenberg's conception of the emancipation of the dissonance, about which much has been written.[43] His example from the first string quartet in which he demonstrates the implausibility of distinguishing dissonance from consonance in an isolated passage recalls similar points made in Schenkerian contexts,[44] yet ultimately fails to add to our understanding of how atonality can be traced through *HL* to Schoenberg's early works.

Nevertheless, this discussion suggests that the relationship between Schoenberg's early works and the theories that have been expressed through *HL* and indeed other writings has not been well represented and warrants some attention.[45] Moreover, it would appear, such study seems timely. In a distinct stream of musicological enterprise, perhaps not unrelated to the gathering pace of the 'new musicology', Severine Neff and Patricia Carpenter have published sets of source materials from the Schoenberg archive which have given cause for significant commentary given their direct engagement with some of Schoenberg's more elusive concepts, such as 'the musical idea', *Grundgestalt*, 'developing variation' etc.[46] In one sense, the material has assisted some of the process of deconstruction of Schoenberg's poetics by offering a greater detail for understanding Schoenberg's writings than has been available hitherto. Because of the fragmented nature of Schoenberg's theoretical ideas represented by these various sources, some attention needs to be given to the identification and descriptions of these concepts.

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43. See, for example, the way Dahlhaus presents the issue: 'What matters is the problem that motivated the attempt to explain it: the problem that emancipated dissonances lacked consequence.' (Dahlhaus 1987: 125).

44. For example Straus 1987: 2-4.

45. This deficiency in Schoenberg studies was first observed by Wintle some twenty years ago (Wintle 1980: 51).

46. See Schoenberg 1994 and Schoenberg 1995.

Thus Chapter 2 of the current study examines form and motif as represented in Schoenberg's discourse. As Schoenberg's writings convey, indeed have been organised around, a distinction between motif and harmony, the two elements have been examined separately, therefore Chapter 3 addresses harmony mainly through Schoenberg's two books on the subject, *HL* and *SFH.*

The framework for the current study is thus emerging. The lack of extant studies of the 1903-05 *Lieder* as a group (discussed below) suggests that they form a suitable object for study. Similarly, a lack of theory-based analyses (as noted by Agawu) in the field of *Lieder* studies points to the appropriateness of an approach based on a consistent music-theoretic model and suggests that such a model (or such models) should underpin their eventual interpretation. The few attempts that have sought to match Schoenberg as theorist with Schoenberg as composer, have suggested that further study which describes Schoenberg's music by using Schoenberg's analytical framework be undertaken. Moreover, there appears to be, within Schoenberg's writings, a logical division between harmonic theory and the description of motif and form, which is appropriate to carry into the theoretical framework of the thesis. Finally, Fortean theory and its recent development in the direction of pc-set genera, offers an appropriate theoretical model especially if used alongside other perspectives which take into account the tonal aspects of these works.

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Despite their transitional nature, and their potential import in studying Schoenberg's 'path to atonality', the *Lieder* of Opp. 6 and 8 have not been well represented in the literature on Schoenberg, and no extant study examines all the *Lieder* of the group. Allen Forte's pioneering study of the origins of atonality in terms of his pc-set theory perhaps offers the widest coverage, and accords these works with considerable theoretic significance. Studies by Cone and Wintle which detail the harmonic processes of *Traumleben* have offered alternative viewpoints: Cone points (as does Forte) to the projections of cell-like figures throughout the work on a harmonic and motivic level, while Wintle argues that the harmonies, when closely matched with theoretical points made in *HL*, are in fact quite traditional at their core. Schoenberg's own analysis of *Lockung* has attracted the attention of many writers, including Forte's article.[47]

The articles which examine these works as part of a group, such as Street's examination of Op. 6 discussed above, Holzer's examination of the sources for the Petrarch *Lieder* (in which he notes

47. See Schoenberg 1954: 111-113 and Forte 1978a: 152-159. See also Dunsby and Whittall 1988: 80-81, Whittall 1993 and Dale 1993.

an ambivalence towards the influence of Wagner) or Lewis's examination of both sets as examples of metaphor, tend to be analytically very selective,[48] and so although their points are well made, they lack detailed multiple exemplification. Two other important works, a pioneering work by Friedheim and a more recent study by Frisch,[49] attempt to place these *Lieder* in a wider context, and both acknowledge the importance of the 1903-5 *Lieder*. Inevitably in these works, the analyses tend to function as support for more general issues.

The chronology of these *Lieder*, shown in Table 1.1 below, suggests that the genesis of the two sets was interlinked, a factor which has informed the decision to include both sets in this study. The period which the *Lieder* span was marked by Schoenberg's return to Vienna (September 1903) after eighteen months of mixed success in Berlin to take up work with the newly formed Universal Edition. His time in Berlin was marked by the birth of his first daughter Gertrud on 8 January 1902 and the unsuccessful venture with the *Überbrettl*,[50] but he also built a potentially useful relationship with Strauß, whose tone poems are perhaps reflected in the *Pelleas und Melisande* score of 1903.[51]

Following Neighbour,[52] it is possible to identify three distinct phases of composition, which in turn have informed the organisation of the analyses that form the central part of this thesis. The first group represents the *Lieder* composed in fairly quick succession in late 1903 and early 1904. The three Petrarch *Lieder* form the second group, which interrupted the composition of the first string quartet. The final group of Op. 6 *Lieder* follows the completion of the string quartet in 1905, although the short orchestral *Lied, Sehnsucht*, which was composed during the time Schoenberg was completing Op. 7, preceded these *Lieder*, and so has been appended to this group. The current study will adopt this particular grouping in the three central chapters (Chapters 6-8) which are devoted to analysis.

48. Street tends to focus on *Der Wanderer*, Holzer on *Voll jener Süße*, and Lewis confines himself to *Traumleben* and *Voll jener Süße*.

49. Friedheim 1963 and Frisch 1993 respectively.

50. These events are described in Stuckenschmidt 1977: 56-57; 66; 58 respectively.

51. As is well known the friendship and comradeship of these early years failed to blossom into a lasting, fruitful relationship, yet during the years 1902-1903, on Strauss's recommendation (Stuckenschmidt 1977: 63) , Schoenberg secured a scholarship from the Liszt Foundation of a substantial 1000 marks.

52. Neighbour 1980.

Opus	Title	Text	Dates on Sources	Cpt (No.)
3/5	*Geübtes Herz*	Gottfried Keller	Sep-Nov 1903	
3/2	*Die Aufgeregten*	Gottfried Keller	Nov 1903	
8/2	*Das Wappenschild*	*Wunderhorn*	26 Nov 1903-25 May 1904	
8/1	*Natur*	Heinrich Hart	18 Dec 1903-7 Mar 1904	6 (1)
6/1	*Traumleben*	Julius Hart	18 Dec 1903	6 (2)
6/4	*Verlassen*	Hermann Conradi	19 Dec 1903	6 (3)
6/5	*Ghasel*	Gottfried Keller	23 Jan 1904	6 (4)
8/4	*Nie ward ich, Herrin müd*	Petrarch/Förster	Jun-3 Jul 1904	7 (5)
8/5	*Voll jener Süße*	Petrarch/Förster	Nov 1904	7 (6)
8/6	*Wenn Vöglein klagen*	Petrarch/Förster	Dec 1904[53]	7 (7)
Op 7	String Quartet No 1		Jan-Aug 1905	
8/3	*Sehnsucht*	*Wunderhorn*	6 April 1905[54]	8 (8)
6/8	*Der Wanderer*	Nietzsche	(Apr 1905)-15 Oct 1905	
6/2	*Alles*	Richard Dehmel	6 Sept 1905	8 (9)
6/6	*Am Wegrand*	John Henry Mackay	18 Oct 1905	8 (10)
6/7	*Lockung*	Kurt Aram	26 Oct 1905	8 (11)
6/3	*Mädchenlied*	Paul Remer	28 Oct 1905	8 (12)

Table 1.1: Chronology of published works, September 1903 – October 1905

53. The manuscripts for *Wenn Vöglein klagen* are not dated. This is the date suggested by Frisch (Frisch 1993).

54. Stuckenschmidt seems to date *Sehnsucht* from 1904 (Stuckenschmidt 1977: 79) yet the sketches and fair copy reproduced in the Schoenberg edition (Schoenberg 1981b) date these to April 1905, which overlaps the composition of the first string quartet.

Chapter 2: The composer's perspective

2.1 *Schoenberg's writings*

A precursory examination of the existing analytical commentaries of Schoenberg's early songs suggests that thematic connectedness and motivic transformations play a significant role in their analysis.[1] At the same time it would appear that while thematic (if not motivic) analysis and theory of the mid-late twentieth-century have taken many forms and are conducted with varying degrees of rigour, most have been influenced either directly or indirectly by Schoenberg's writings or teachings in some form.[2]

The objective of this section is to focus on Schoenberg's own writings with a view to incorporating these ideas into the analytical discussion of form and the way in which it is articulated by thematic and motivic structure. This appears to be facilitated by the fact that Schoenberg was an eager and active participant in the contemporary debate on music theory, and that at the close of the twentieth-century, a significant proportion of Schoenberg's sizeable written output on a wide range of music-theoretic topics has been published. However, perhaps with the exception of harmony, much of the material remains difficult to translate directly into analytical method for two reasons.

Firstly, the publication dates of material ranging from 1911 to 1995 span nearly the entire twentieth-century (reflecting different publishing conventions and the needs of their intended audiences), further complicated by the fact that each emerges from separate stages in the composer's life.[3] This is not to suggest that Schoenberg's ideas changed drastically within his life

1. At least, 'motivic connection' alongside 'harmonic structure' forms the basis of the analyses of Frisch 1993, Friedheim 1963 and Lewis 1987.

2. This is the view of, for example, Dunsby and Whittall (See Dunsby and Whittall 1988: 74). In his survey of the influence of Schoenberg the analyst Simms (Simms 1998: 232) links Réti with Schoenberg's ideas (even though Réti tends not to indicate his own influences himself), on account of the correspondence of Réti's 'basic pattern' with Schoenberg's 'basic shape'.

3. *HL* was written in 1910-11 and revised in 1922 (Schoenberg 1978); *MB* was written around 1942 (Schoenberg 1942); *FMC* was written, according to Gerald Strang's preface intermittently between '1937 and 1948' (Schoenberg 1967); and Schoenberg's preface of *SFH* dated 1948 indicates a 'two-year' writing period (Schoenberg 1954). Furthermore, two important publications consisting of translations of unfinished and fragmentary work with commentaries have been recently published. *ZKIF* is a manuscript of 1917 comprising notes which sketch a plan for projected theoretic works (Schoenberg 1994), and (ii) *MI* represents an unfinished attempt to formulate a theory of the

span, as in general they did not. If anything, the recent commentaries appear to argue that Schoenberg's ideas evolved throughout his life,[4] and it is clear that much has remained constant. As will be discussed below, there are no instances of direct contradiction between the various discussions and definitions. Rather, it is the manner of their presentation and their intended audiences which has changed, with the European audience for which *HL* was intended giving way to the more institutional pedagogy of *MB* and *FMC* intended for the diverse and perhaps musically uninitiated students of the Universities of California and Southern California, followed by what might be termed 'the historical curiosity' which has informed the publication of some of Schoenberg's notes for various projects he began but was unable to complete within his lifetime.[5] In respect of the lattermost it is clear that a considerable degree of interpretation must be undertaken when examining their contents, precisely because they were left incomplete – one cannot make assumptions as to whether the discussions of ideas and concepts represent a complete exegesis, nor can one expect them to reflect exact consistency with other published material, when obviously Schoenberg was unable to scrutinise them to this end.

Secondly, it is clear that Schoenberg's own purpose tended towards compositional pedagogy rather than towards a comprehensive theoretical presentation which might be supported by analytical rigour.[6] Indeed, the frequently cited question as to what extent Schoenberg was 'theorist' as opposed to 'composer' is probably best answered with reference to his own view on the matter,[7] although Dunsby and Whittall offer with some conviction the view that the scope of the unfinished *Gedanke* project with its focus on 'comprehension', presents 'Schoenberg's work as an outstanding fusion of compositional and analytical discipline'.[8] In terms of Schoenberg's analyses, he has not offered any extended discussion which either he has labelled or we could describe as a 'complete analysis' of a work,[9] and although the multitudes of illustrative analytical

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'musical idea' stretching through the years 1933-1935, but also contains fragments of other manuscripts dating from 1923 through 1935 (Schoenberg 1995).

4. See Schoenberg 1995: 18-21.

5. That is, Schoenberg 1994 and Schoenberg 1995.

6. Discussions of terms such as 'motif' and 'phrase', and even 'developing variations' can be found in *SI* (Schoenberg 1975) or *FMC* (Schoenberg 1967), but as there are numerous references to each of these, a categoric definition is elusive.

7. 'I am still more of a composer than a theorist.' (Schoenberg 1975: 91).

8. Dunsby and Whittall 1988: 75.

9. Both Neff (Neff 1999: 60) and Simms (Simms 1998) concur with this point.

fragments provide ample demonstration of his concepts, these tend to be presented as compositional pedagogy rather than comprehensive theory.

Both issues have contributed to the growth of a substantial secondary literature with varying objectives, in which it is not always clear which sources the writer had at his/her disposal. As Neff has observed, many observers have taken up the challenge to attempt to create 'complete theories' of Schoenberg's often fragmentary definitions, analytical observations and ideas with varying degrees of success.[10] A number of authors such as Frisch and Epstein have attempted to focus on a portion of Schoenberg's ideas in order to develop their own theories which underpin the analyses they present to illustrate a particular corpus of music.[11] It is interesting to observe that in these cases, few have followed their theories. Indeed, in Frisch's more recent book on the early works of Schoenberg, Frisch himself does not apply with any degree of rigour the 'developing variation' principle which he had described in relation to Brahms's works.[12]

Yet another group of commentators (exemplified by Boss and Collisson), while attempting to remain faithful to Schoenberg's theory as it stands, introduce some form of theoretical rigour which enable the author to present a comprehensive analysis of particular works.[13] In examining the writings of others, Collisson's work on *Grundgestalt* and 'developing variation' demonstrates the practical difficulties in maintaining consistency when translating notions and ideas into an analytical method – i.e.: is the principle which has been defined applicable throughout the work being analysed? – and sufficiency – i.e.: has the analysis captured enough about its subject to be considered successful?[14] These issues will serve as useful principles for review in the light of the analyses offered in the current volume. Although Collisson outlines an intermediary theory which is convincing in terms of the repertoire he addresses, it can be argued that it is more

10. See Neff 1999: 55. Neff's footnote 3 offers a useful list of authors.

11. Frisch addresses Brahms by using Schoenberg's principle of 'developing variation' (See Frisch 1984). Epstein attempts to combine Schoenberg's *Grundgestalt* concept with Schenker's idea of prolongation.

12. See Frisch 1984 and 1993. The final chapter of the earlier publication directly addresses developing variation within the very early Schoenberg works and one might have expected the later publication, based on early Schoenberg works, also to apply the principle. It is referred to but not with the consistency which marked the Brahms volume.

13. See Boss 1992 and Collisson 1994.

14. See Collisson 1994. Chapter 2 in particular offers comprehensive critiques of analyses by Neff, Carpenter, Boss and Schmalfeldt exposing significant deficiencies in each. (The analyses are respectively Neff 1984, Carpenter 1983, Boss 1992 and Schmalfeldt 1991).

difficult to apply to the smaller scale works which the current study addresses.[15] Nevertheless, Collisson and Boss remain amongst the few commentators who attempt to match Schoenberg's concepts with analyses of his own works, a position which is in sympathy with the concerns of the current study.

The main focus of the discussion in this chapter will be upon form and the structural units which articulate it, such as motif, *Gestalt*, phrase, etc. as well as the more abstract concepts, such as 'coherence', 'variation' and 'developing variation'. The discussion of harmony will be postponed until the next chapter, where Schoenberg's writings on the subject will be considered alongside a Schenkerian context.

2.2 *Schoenberg's analyses*

Schoenberg's own analyses, which exist in various forms spanning his entire life, might be classified in terms of their scope. The 'harmonic' analyses, characterised by a system of Roman-numeral classification (which are generally presented under the score), form an important substantial group and will be considered more fully in Chapter 3.

The 'complete analyses' in which the scope of the analysis is a complete work (examples of which are very much in the minority), form a second group. The two radio talks fall into this category, and, although by early twenty-first-century standards the methodology might not be deemed particularly consistent or comprehensive (understandable given their context), it is clear that their objective is to elucidate the works they address by presenting an explanation of their parts.[16]

A third group which might be called 'fragmentary analyses' is represented by the hundreds of small fragments that permeate and characterise *FMC*, primarily illustrating a construct or elucidating a pedagogical concern rather than explaining the context of a construct within the cited work. Considerably fewer examples of these can also be found in *ZKIF* and *MI*, although it is clear that such fragments hold an important place throughout Schoenberg's writings through the many examples that punctuate the essays which constitute *SI*. Some of these analyses will be discussed in the context of the concepts they illustrate, in the later sections of this study.

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15. See below, pp. 38 and 52.

16. See the radio talk analyses of Schoenberg's own compositions, Op. 22 and Op. 31 (Schoenberg 1968 and 1960 respectively).

Schoenberg's analysis of Op. 22, which was originally intended as a radio talk,[17] indicates a way in which analyses may be built around motivic material and its transformation. It offers an indication of the scale on which Schoenberg formulates his motifs, as the three-note motif which predominates is identified by its intervals (minor second and third), rather than it being a set of notes with a characteristic shape. In the list of transformations (labelled in the text as Nos 8-12) it is the intervals themselves which underpin the variations, and in this way a rising minor third followed by a falling minor second (No. 8) can in a varied form become a rising minor third followed by a rising minor second (No. 9). Other types of transformation allow a change in the intervals, and so the minor second and third become major seconds and thirds respectively (described as the 'enlargement of intervals').[18] The claim that the ninth phrase (bar 9) represents a 'distinct variation' of the first phrase emphasises the role rhythm can play in identifying variants of motifs because the 'truncated' rhythm is the only 'motivic feature' which it shares with the opening phrase.[19]

The description of the three-note motif's origin also provides a surprising observation in that it has been deduced not from a particular fragment within the succession of notes in the first phrase as one might have expected, but from a *précis* of the entire phrase which Schoenberg has described as consisting of a 'series of minor seconds to which a minor third is appended'.[20] Note also the emphasis on interval rather than 'note', which recalls his discussion of the motif-forms.

The radio talk also makes the point that the motifs of the first song extend to the second, and its analysis of the second song focuses upon the most obvious instances of the main motif. At several points he also indicates an awareness of the 'coincidence' argument, which a critic might level at drawing too much analytical significance from a motif of such modest proportions, which can be subjected to considerable transformation. Schoenberg's implied defence establishes his composer-viewpoint pointing out that a single motif can fashion an unlimited number of compositions:

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17. Schoenberg 1968.

18. Schoenberg 1968: 33, illustrated in Nos. 23 and 24. Note how Schoenberg allows the note 'A' to be classified as ornamental to preserve a motif.

19. These elements (variation, motivic feature) are defined more clearly below. Note that although the intervals and interval succession of bar 9 cannot be reconciled with the opening phrase, the pc-sets of the two are related by the embedding relation (in the pc-set terminology used in this study, each is in the other's K* complex). It is unlikely that Schoenberg, even if aware of the connection himself, would have expected his radio audience to pick up this point, and so it is assumed that the 'distinct variation' relates to its 'basic motif' by virtue of the rhythm of the figure.

20. Schoenberg 1968: 28.

> ...this [its instance in the second song] merely proves the well-known point that with only one motif it is possible to fashion an unlimited number of pieces, all of them totally different from one another; that in this context the motif need be nothing more than a building-stone, and that the only thing that matters in this respect is the manner of its structuring.[21]

The other radio talk, which addresses the serial work, *Variations for Orchestra*, Op. 31, also focuses upon motif. The central issue is the polarity between mere repetition and the idea underpinning developing variation (as a means of avoiding repetition), by contrasting popular music, exemplified by Strauß's *Blue Danube Waltz*, with the main theme of the Brahms Cello Sonata Op. 99.[22] The argument serves as the focal point for his discussion of Op. 31, which he further preludes by presenting a recomposed version of the Variations' tone row in a tonal context,[23] described as being in 'ternary song-form'. The commentary goes on to analyse this recomposed version, offering two levels of presentation: a formal-type analysis (which bear the hallmarks of the principles which can be found throughout *FMC*, written some 15 years later); and a harmonic presentation in which the 'ternary song-form' based on the Variations' tone row is given a diatonic context based on an F major tonal centre. The formal analysis proceeds by classifying the phrases in terms of a period-construction based on antecedent and consequent and commentary explains how one phrase gives rise to the next by means of varying the rhythmic pattern and the 'shape' of the first phrase. The entire exercise serves to emphasise to his audience how the new harmonic and pitch-structure proceeds from formal and harmonic processes which characterise the music of the familiar past.[24] The remainder of this analysis is focused on the way in which Op. 31 is constructed.

The usefulness of these analyses to the current purpose lies in the fact that they illustrate that Schoenberg's concept of analysis could extend beyond the scope of the 'fragmentary illustration', and that the terms he uses in his teaching and theoretical works could be put to use in analysis.

21. Schoenberg 1968: 34.

22. 'I employ constant variations, hardly ever repeat anything unaltered, jump quickly to the remoter stages of development, and I take for granted that the educated listener is able to discover the intervening stages for himself.' Schoenberg 1960: 30.

23. See Schoenberg 1960: 31-33.

24. See Schoenberg 1960: 34. In comparing music based on a 12-note row with tonal music (of the type he has just demonstrated) he writes, 'The only difference between this and tonal composition is that all twelve notes are used, without being related to a tonic, and that the earlier technique for the treatment of dissonances is no longer applied. I regret the unusual difficulty that rises from this, and nobody could be more distressed that he cannot speak to his contemporaries in a more comprehensible way.'

They also share with the current study the desire to identify through technical means, discrete components or elements which demonstrate links between music's past, present and future.

2.3 *Schoenberg's concept of 'form'*

In the introductory chapter to *FMC*, Schoenberg outlines the scope of his conception of 'form':

> Used in the aesthetic sense, form means that a piece is organised; i.e. that it consists of elements functioning like those of a living organism.
>
> The chief requirements for the creation of a comprehensible form are logic and coherence. The presentation, development and interconnexion of ideas must be based on relationship.
>
> Man's mental limitations prevent him from grasping anything which is too extended. Thus appropriate subdivision facilitates understanding and determines the form.[25]

These phrases offer three characteristics which all appear to represent Schoenberg's vision of form. The first is the familiar metaphor of a living organism, which pervades many of Schoenberg's writings.[26] In the commentaries to both *ZKIF* and *MI*, Carpenter and Neff strongly emphasise the centrality of the notion of 'the living organism' to Schoenberg's theory. *MI* presents 'organic form' in contrast with 'mechanical form' whereby members (living organs) 'are activated not by energy resulting from an inner driving power but as a result of their organic membership in a living being, and are independent of both it and of each other', which is distinct from inanimate 'parts' such as one gets from 'cutting up a loaf of bread'.[27] The observation that 'an organism can do without some of its members without ceasing to live',[28] exemplifies Neff's point that an important distinction should be drawn between Schoenberg's vision and that of conventional 'organicist thought', whereby the latter denies the existence of the whole if it is without one or more of the parts, an ideal which Schoenberg feels does not apply in musical composition.

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25. Schoenberg 1967: 1.

26. C.f (1) Schoenberg 1995: 119, 'Above all, a piece of music is (perhaps always) an articulated organism whose organs, members, carry out specific functions in regard to both their own external effect and their mutual relations'; and (2) Schoenberg 1994: 58, 'To organise something means to build it so that its parts function, that is, work together for a common purpose. Accordingly, a piece consists of parts, limbs, organs like every other living creature and whatever might be the tendency of the actual musical contents, their principal function will be to produce an intelligent and intelligible impression on a listener.'

27. See Schoenberg 1995: 119.

28. See Schoenberg 1995: 119.

Both *MI* and *ZKIF* lucidly present the idea that a work can function like a 'living organism' in which parts have identity yet interact with each other to form something significantly greater than their sum. However, both accounts also quickly focus on the key element of this metaphor in the musical object, the notion of coherence and logic that binds 'members' together. This is the second characteristic which can be identified in the *FMC* descriptions of form cited above and, as will be shown, Schoenberg expands and explains in considerable technical detail what he means by coherence.

The interdependence between coherence and the third characteristic, that of 'the subdivision', is elegantly captured by Bent in his description of Schoenberg's notion of form:

> Schoenberg saw form as implying comprehensibility in two dimensions: as subdivision, which enables the mind to grasp the whole through units; and as logic and coherence, without which such units remain disconnected. [29]

The distinction between the notion of units which represent subdivisions of the whole, and the means by which such units may be connected (in terms of the unit themselves), is the key factor in this description of Schoenberg's form. Indeed, the editors of the *Gedanke* manuscripts structure his theory of the 'Musical Idea' by foregrounding this distinction: a section entitled 'Elements of Form' which details a set of definitions and descriptions of the various musical parts (or 'members') is balanced by 'Formal Procedures' which focuses on the means by which parts are distinguished (or articulated) yet bound together. This polarity is echoed in *ZKIF* where an extended discussion of coherence is followed by definitions of motif and rhythm before returning to 'principles of structure' (articulation, variety etc.), as well as in *FMC*, where the definitions of phrase and motif (Chapters II and III respectively) precede the discussion of connection between motif-forms (Chapter IV) and the presentation of the sentence/period dichotomy (Chapters V to VIII).

As suggested, Schoenberg's notion of articulation is closely bound up with the polarity between identity of component, and the means by which identity is sustained. Articulation is a necessary construct given the limitations of the human mind, and while its primary purpose is to subdivide,[30] Schoenberg's concept invokes sensitivity to the nature and functions of the parts.

29. Bent 1987: 54.

30. 'Above all the issue is to make the members discernible by clearly delimiting them one from another; this is done by means of a distinct manner of beginning and ending.' Schoenberg 1995: 225.

Articulation is a subdividing process that will produce parts that 'differ in the kind and manner of [their] beginning and ending'.[31] Indeed, in *ZKIF*, his conception is even more direct: 'the purposeful articulation will distinguish between main and subordinate matters by giving each its proper place, duration, weight, etc.'[32]

Finally, articulation is also the means by which the musical idea is expressed in Schoenberg's conception, in which the 'idea' can never be expressed in its totality in the same way as it is conceived – rather, it must be divided into parts which should be separated from each other:

> Articulation is necessary for every idea, the moment it is expressed; for, although we think an idea at once, as a whole we cannot say it all at once, only little by little: we arrange the different components in succession, components into which we divide up the idea differently from the way we put it together, and thereby reproduce more or less precisely its content.[33]

Nevertheless, the 'musical idea' itself is not within the scope of the current discussion. The important point is the role played by articulation in that it subdivides and identifies the smaller components. The following section will examine Schoenberg's definitions and discussions of these smaller components, with a view to their usefulness in the analyses that follow. Following the *Gedanke* manuscripts, the components themselves will be considered under 'Elements of Form', while the means by which these components are 'connected' will be considered under 'Formal Procedures'.

2.4 *The elements of form*

2.4.1 Distinguishing motifs, figures, phrases and *Gestalten*

Schoenberg's discussions of these key 'Elements of Form' which pervade *FMC*, *MI* and *ZKIF*, offer separate views of these concepts with differences in their emphases,[34] although the descriptions are evolutionary rather than contradictory. Moreover, the notion *Gestalt*, which is meticulously distinguished from both phrase and figure in *MI*, is absent from both the later English-language

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31. Schoenberg 1995: 225.

32. In *ZKIF* '*Gliederung*' has been translated distinctly as 'structure' and 'articulation' within the same passage (Schoenberg 1994: 32-33). Interestingly, when this passage is quoted by Carpenter and Neff in their *MI* commentary (Schoenberg 1995: 47), they translate '*Gliederung*' as 'articulation', as I have done here.

33. Schoenberg 1978: 289.

34. Neff for example, in describing Schoenberg's writings on 'motif', writes: 'In his extant writings, Schoenberg gave several different definitions for motive'. (Neff 1999: 59).

publications (*FMC* and the earlier *MB*) and from the earlier *ZKIF*. Nevertheless, it is difficult to consider Schoenberg's conception of these four notions independently of each other because some of the descriptions invoke differences between the elements themselves, as the following passage demonstrates:

> Gestalten and figures have very great similarity with each other except for one thing: a Gestalt is something unique (even though it is repeated); in contrast, the figure is relatively noncommittal (even if it is not repeated) and in its repetitions usually appears more freely than other small components. Both differ from the motive (which is active in them!!!), since the motive - so to speak, the unadorned, abstract, underlying basis - can occur entirely or partly in the figure or Gestalt, and the latter two are simply the adornment of the underlying abstractions. Conversely, a motive can also be delineated by figures, but can also occur independently or less frequently than figures, can be larger or smaller than figures.[35]

Motif here is depicted as abstract and perhaps 'bare' (The original German descriptive word is *unbekleidet*, which means literally 'unclothed, naked') whereas *Gestalten* and figures represent its adornment or embellishment (*Einkleidung* is literally 'fitted out with new clothes') within the musical work. It would be a mistake, however, to over-interpret the idea of 'abstraction' as opposed to 'articulation' which this passage might suggest in isolation. Motifs and their 'forms' (discussed further below) are elsewhere depicted as clearly articulated and identifiable elements within a composition, elements which themselves can be broken down into one or more 'features'. The highlighting of motifs in the analyses of Schoenberg, and the notes which can be found in the manuscripts of his students, also confirm this view.

Moreover, the *Gedanke* manuscripts define a *Gestalt* as 'consisting of more than one statement of the motif',[36] while also confirming that the motif is in general smaller in scale than a *Gestalt*.[37] A similar definition exists for the 'phrase',[38] which also represents 'the more or less connected

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35 Schoenberg 1995: 368-369. This quote is not part of the *Gedanke* manuscripts *per se*. It has been included in the volume's Appendix, and is taken from an unpublished manuscript titled '*Zur Terminologie der Formenlehre*' dated 1923.

36 Schoenberg 1995: 168-169.

37. See Schoenberg 1995: 168-169, 'for Gestalten and Grundgestalten are usually composed of several motive forms; but the motive is at any one time the smallest part.' and 'Motive is at any one time the smallest part of a piece or section of a piece... that is recognizable as present throughout.' This last part of the phrase effectively qualifies the idea that a motif could be larger than a figure. Such a figure (smaller than the given motif) would be only of local significance and therefore would not qualify as a motif.

38. See Schoenberg 1995: 167: 'School definition: A phrase usually consists of more than one form of the basic motive'.

stringing together of *Gestalten*, motivic transformations, and motifs'.[39] '*Gestalten*' and 'phrases' are directly compared in a description that initially recalls the comparison between '*Gestalten*' and 'figures' cited above, and confirms the necessity of the notion of 'uniqueness' or 'characteristic' as an attribute of a *Gestalt*.

> I would speak of 'Gestalt,' when in doubt, only if dealing with something characteristically articulated (quasi-articulated) - of 'phrase,' when in doubt, if it is like a part of speech, perhaps in the raising and lowering of the voice, and so forth. Motivic transformation need not always lead to either Gestalt- or phrase-formations, but its absence from the latter is less common.[40]

The last phrase is strange because it is not immediately clear why it should be more often the case that motivic transformation appear in phrase-formations than in *Gestalt* formations. However, it is worth emphasising that the text cites 'motivic transformation' as opposed to 'motif', and it may be construed that a *Gestalt* is to be more closely identified with a given motif or motif-form.

While this section has examined Schoenberg's descriptions of these concepts in terms of each other, the following sections seek to examine each of the concepts individually. The objective remains to define the constructs sufficiently using Schoenberg's definitions, so that they might be used in describing the relationships between musical components within the analyses that follow.

2.4.2 Motif

Until the publication in the mid-1990s of Schoenberg's notebooks (*ZKIF* and *MI*), the most enduring (and most popular in terms of citation) definitions of motif came from Chapters III and IV of *FMC*.[41] The following passage epitomises the *FMC* view of motif:

> In as much as almost every figure within a piece reveals some relationship to it, the basic motive is often considered the 'germ' of the idea. Since it includes elements, at least, of every subsequent musical figure, one could consider it the 'smallest common multiple'. And since it is included in every subsequent figure, it could be considered the 'greatest common factor'.[42]

The notion of a 'basic motif' as distinct from the 'motif-forms' to which it gives rise,[43] dates from *HL*, and although absent from the *ZKIF* manuscript of 1917, is also referred to in the unpublished

39. Schoenberg 1995: 167.

40. Schoenberg 1995: 171.

41. See Schoenberg 1967: 8-19.

42. Schoenberg 1967: 8.

43. 'Motif-forms' are described in *MB:* 'The variations of a motif produce new motif-forms, which are the material for continuations, contrasts, new segments, new themes, or even new sections within a

1923 manuscript referred to above.[44] In *MI*, the 'basic motif' is fundamental to the way in which 'the presentation of ideas is based on the laws of musical coherence':

> According to these, everything within a closed composition can be accounted for as originating, derived and developed from a basic motive or at least from a Grundgestalt.[45]

Carpenter and Neff point out that Schoenberg's view changed somewhat in that, where formerly he considered a work to be based on many motifs, he now believed it was based on just one.[46] While this appears to be a categorical shift of viewpoint, the fact that Schoenberg provides few analyses which demonstrate comprehensive derivation from a single basic motif or a set of basic motif-forms in the context of an entire work, suggests that such theoretical polemic will be constrained, indeed, defined by the nature of the analyses themselves. If it is possible to demonstrate connections with a single basic motif, then the analysis will do so, if however the transformations to derive material from opening motifs are too great, then this will provide evidence for proposing an alternative 'multi-motif' viewpoint.

Schoenberg's descriptions from the three periods tend to agree that the identity of 'motif' is established by its varied or unvaried repetition,[47] and its pervasiveness in the context of larger musical components. They also tend to agree that some form of rhythmic feature is a necessary characteristic of 'motif'.

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piece' (Schoenberg 1942: 15), and *FMC*: 'Through substantial changes, a variety of *motive-forms*, adapted to every formal function, can be produced' (Schoenberg 1967: 8).

44. '*Zur Terminologie der Formenlehre*', referred to in Schoenberg 1995 as 'Mus 66'. The reference to 'basic motive' is translated in the 'Concordance of Terms' (in Schoenberg 1995: 357-8).

45. Schoenberg 1995: 135.

46 See Schoenberg 1995: 20. The point that Carpenter and Neff make relates to a document written in 1939, while the 'multi-basic motif' view refers to the time of *HL*.

47. (1) 'A musical motive is a sounding, rhythmicised phenomenon that, by its (possibly varied) repetitions in the course of a piece of music, is capable of creating the impression that it is the material of the piece.' (Schoenberg 1994: 29); (2) 'Motive is at any one time the smallest part of a piece or section of a piece that, despite change and variation, is recognizable as present throughout. Upon this alone does the expansion of a motive depend ... In reference to its use a motive will be designated as a complex of interconnected features with regard to intervals, rhythm, character, dynamic, stress, metric placement etc.' (Schoenberg 1995: 169-171); (3) 'Motif is a unit which contains one or more features of interval and rhythm. Its presence is manifested in its constant use throughout a piece. Its usage consists of frequent repetitions, some of them unchanged, most of them varied.' (Schoenberg 1942: 15), (4) 'Every element or feature of a motive or phrase must be considered to be a motive if it is treated as such; i.e. if it is repeated with or without variation.' (Schoenberg 1967: 8).

Another important part of Schoenberg's presentation of motif in Chapter III of *FMC* is that a motif need not be 'atomic', that is a motif can be broken down into constituent parts or 'features', which themselves might be treated as motifs, as Schoenberg describes:

> Any rhythmicised succession of notes can be used as a basic motive, but there should not be too many different features ... A motive is used by repetition. The repetition may be exact modified or developed. Motive is comprised of different 'features' (which themselves can be termed motives if they are treated as such)[48]

'Treatment' is the key word here: a motif's features may be classified as individual motifs themselves, but not unless they are repeated and varied. Nevertheless, the features (whether or not they become motifs themselves) remain an integral part of the motif's constitution. In *MI* the 'features of a motif' are explicitly characterised as being 'musical in nature: pitches (intervals), rhythm, harmony, contrapuntal combination, stress, and dynamics'.[49]

One of the more elusive but recurrent characteristics of the motif which Schoenberg points to is the idea that the motif has some sort of inner characteristic which drives its variation from later motif-forms. This appears to parallel an argument prevalent in his harmonic theory, that within the tone itself, the overtones imbue a tone with its 'home' regions and its distant regions simultaneously. In the earlier manuscript (*ZKIF*) this is represented by the notion of 'motor' which depicts a characteristic that gives rise to a 'state of unrest' founded upon the establishment of a motif through its (possibly varied) repetition. In the *MI* manuscript, the relationship between the unrest within the tone in terms of the tonic in the context of harmonic regions is linked to the unrest inherent in the motif:

> And only after conquering and neutralizing all opponents – at the end in other words – can the power of the tonic prove itself and a state of rest again prevail.
> This unrest is expressed almost always already in the motive, but certainly in the Gestalt.
> In the theme, however ... the problem of unrest that is present in the motive or the fundamental Gestalt achieves formulation. This means that as the theme presents a number of transformations (variations) of the motive, in each of which the problem is present but always in a different manner, the tonic is continually contradicted anew - and yet, through rounding off and through unification an 'apparent state of rest' is established, beneath which the unrest continues.[50]

The unrest inherent in the motif, therefore, can have a harmonic dimension, although this is not necessarily the case. In Schoenberg's definition of 'motif' in *MI*, he speaks of the 'expansion' of a

48. Schoenberg 1967: 9.

49. Schoenberg 1995: 171.

50. Schoenberg 1995: 107.

motif which is dependent on its recognition through repetition (despite change and variation). 'Expansion', however, is essentially a potentiality, in that occasionally a motif will 'make use of its *full* expansion'.[51]

The idea of unrest as a property of the motif is also manifest in the later works. In *MB* it is positioned as the 'obligations of the motif' which derive from a 'tendency or inclination inherent in a motif by which it aims at developing variation'.[52] Presented in this way, the concept also clarifies the process of liquidation (discussed more fully below): the 'obligations of the motif' are capable of being neutralised by omitting features, bringing about a form which is 'non-obligatory'.

The motifs cited within Schoenberg's own analyses, which span *ZKIF* to *FMC*, tend to be small in scale. This has been confirmed by the three-note motif noted in Schoenberg's own Op. 22 analysis discussed above. Although in the analyses which follow there is a concern to identify motifs and motivic connections which resist the argument that they could be deemed 'co-incidental', Schoenberg's point in choosing motifs of such a small scale serves to underline that the coherence of the whole is constructed through the manipulation of fragmentary details.[53]

2.4.3 *Gestalten* and 'figures'

The absence of the notion *Gestalt* from *FMC* (and its distinction from the term 'figure' in *MI*) appears to pose a problem for the objective of using Schoenberg's terminology in the analyses which follow. Carpenter and Neff (whose experience with the primary sources is significant), offer in their preface an explanation of '*Gestalt*' which approximates the notion with contemporary usage of the term 'figure', Schoenberg's distinction between *Gestalt* and 'figure' notwithstanding.[54] This suggests a working definition of the notion: when a part of a phrase or small fragment is identified as a *Gestalt*, it will draw attention to it being imbued with a particular characteristic (motivic or otherwise); a part of a phrase or fragment which is discussed in a more 'neutral' context will be described as a 'figure'. Indeed, the term 'musical figure' which appears in

51. See Schoenberg 1995: 171. The full text is cited above as [2] in footnote 46.

52. See Schoenberg 1942: 15.

53. In this regard the one cannot help but speculate that the detail (and often ingenious motivic derivations) offered by analysts such as Lewin (see, for example the analysis of Webern's Op 10 No 4 in Lewin 1993: 68-96) would probably have found sympathy with Schoenberg's analytical viewpoint.

54. Schoenberg 1995: Editors' Preface xxi.

Schoenberg's discussion of motif in *FMC*, cited above, would in that context suggest a degree of neutrality (or something 'non-committal', to use Schoenberg's description).

2.4.4 The *Grundgestalt*

The *Grundgestalt* remains, despite the publication of the *Gedanke* manuscripts,[55] one of Schoenberg's more extensively discussed yet elusive terms. Although there are references to the term in Schoenberg's writings, it arguably remains undefined by Schoenberg himself,[56] and in the light of the limited extant primary sources, the most authoritative sources are generally regarded as being provided by his pupils Stein and Rufer in their various outputs.[57]

Their descriptions are characterised by the location of the *Grundgestalt* at the beginning of a work and the fact that it provides a basis for the remaining motivic, rhythmic and harmonic content of the work.[58] On the other hand, the descriptions offered by Schoenberg's pupils are undermined by a degree of confusion with the 'basic set' with respect to 12-tone work, and the sense that their descriptions of *Grundgestalt* might be more typically characterising 12-tone compositions,[59] which are perhaps too stylistically specific to be able to be transferred into non-serial music. Moreover, the students' descriptions lack a demonstration of how the concept might be applied to a complete (tonal) piece.

A significant number of other secondary sources have been assimilated and discussed by Collisson in a study devoted to defining and identifying *Grundgestalt* in the string quartets of Schoenberg. Collisson's work typifies the rigour and detail with which a number of commentators have described and developed the *Grundgestalt* concept. He establishes a *Grundgestalt* for each of the

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55. That is, Schoenberg 1995. Particularly useful is the entry for 'Basic Configuration [*Grundgestalt*]' in the 'Concordance of terms' (353-356) which includes translated extracts from manuscripts of 1925 which are not part of the '*Gedanke*' manuscripts.

56. As claimed by Collisson (see Collisson 1994: 22), and Simms (see Simms 1998: 225).

57. Rufer 1954 and Stein 1953. See Simms 1998: 225-228.

58. Stein is somewhat ambivalent as to whether 'rhythm' is part of the *Grundgestalt*. In Stein 1953: 62, he suggests it is not, with the *Grundgestalt* being more abstract in its construction. In his own theory as presented in Stein 1989, rhythm is clearly part of the notion 'shape', of which the one which occurs at the outset of the piece is regarded as a progenitor for the remaining shapes.

59. See Rufer in the introduction to his 'Composition with Twelve Tones' (Rufer 1954: vii). Stein's description in Stein 1953 also suggests a serial context.

works he addresses, based on criteria derived from several authors.[60] In order to illustrate the process of developing variation, like Schmalfeldt and Boss, he establishes a rigorous system for the classification of 'motivic processes' based upon contour, rhythm, interval succession and boundary notes.[61] In establishing a model that indicates the relative distance between a given motif-form and the *Urmotive* (the motif-form within the *Grundgestalt*), he effectively defines a hierarchy within the parameters listed above.[62] Thus if a motif-form retains the contour and rhythm of the original it is classified as 'fixed class 1 or 2', whereas if it contains either contour or rhythm (and one of the other parameters) it is classified as 'developed class A' and so on. In this way he creates a model of the degree to which a *Gestalt* form might be deemed to have been transformed from the *Grundgestalt*.

Recalling the presentation of the basic motif within Schoenberg's analysis of Opus 22 (if not its comprehensiveness) it is possible to imagine how a set of *Gestalten* might be presented in terms of the *Grundgestalt*, without recourse to a rigorous model as suggested by Collisson. If the phrase 'basic-motif' were to be substituted for '*Grundgestalt*', and 'motif-forms' for '*Gestalten*', then the following passage from the *Gedanke* manuscripts seems appropriate in respect to the Opus 22 analysis:

> Contrast and new formations are usually shapes rather remote from the Grundgestalt ... Relatively near-related forms can be traced back easily and directly to the components and parts of the Grundgestalt, while those more remote formations occurring in both are often only related indirectly to the Grundgestalt; hence the coherence can only be recognised indirectly via one or several intermediate Gestalten.[63]

Other references to *Grundgestalt* by Schoenberg in relation to *Gestalten* and coherence suggest a more pejorative view:

> The more artful or at least the more complicated the idea is, the richer the number of Gestalten, the greater their distance from the Grundgestalten, the faster the tempo of their stringing together,

60. These include Carpenter (Carpenter 1983), Phipps (Phipps 1983), Neff (Neff 1984), Schmalfeldt (Schmalfeldt 1991), and Boss (Boss 1992).

61. See Collisson 1994: 83-4. It is not totally clear why Collisson has rejected 'harmony' which appears in the Schoenberg quote he cites, 'Schoenberg specifically identifies rhythm, interval, harmony and contour as the features of the motive.' In his model, Collisson replaces 'harmony' with 'boundary notes'.

62. See Collisson 1994: 84.

63. Schoenberg 1995: 354.

> and the more the ability of a listener will be relied upon to grasp quickly and in their full consequences the coherence-forming components.[64]

This formulation is not too different from the better known reference in *SI* in the article 'Linear Counterpoint',[65] but the argument that 'artfulness' is proportional to the potential relationships between *Gestalten* and its derivation from the *Grundgestalt*, suggests criteria for evaluation.

In order to assess whether they can be considered to fulfil a *Grundgestalt* function, the analyses which follow will identify motivic elements in the opening figures or *Gestalten* which recur and are transformed in the work through developing variation.

2.4.5 Sentence, period and theme

For Schoenberg, the sentence and the period represent a pair of archetypes which construct or articulate 'themes' in classical music:

> A complete musical idea or theme is customarily articulated as a period or a sentence. These structures usually appear in classical music as parts of larger forms (e.g. as A in the ABA form), but occasionally are independent (e.g. in strophic songs).[66]

The sentence is 'a higher form of construction than the period' due to the fact it begins a form of development.[67] Both are broken into four parts or phrases (although parts 3 and 4 in the sentence are amalgamated) and Schoenberg presents the difference between the two as the way in which the second phrase is constructed, and its continuation. In the sentence exemplified by 'classical examples' the opening phrase must present the basic motif, while a second phrase repeats or varies the first, generally retaining the rhythm and contour while altering melody and/or harmony. The sentence is completed by a phrase or set of phrases which include 'more remotely varied motif-forms' that may in turn give rise to a 'variety of structures'.[68] Often this will invoke the process of 'liquidation',[69] but will lead to a partial closure of the structure, in classical music cadencing on I, V or III, 'according to its function'. A period on the other hand is divided into two parts, an antecedent and a consequent, and is distinguished from the sentence through its

64. Schoenberg 1995: 353.
65. Schoenberg 1975: 290.
66. Schoenberg 1967: 20.
67. Schoenberg 1967: 20.
68. Schoenberg 1967: 58.
69. This is itself discussed more fully below (see p. 46).

'postponement of the repetition'. Thus the first part of the antecedent (which corresponds with the first phrase in the sentence) will present the main motif and be followed by a second part that will introduce 'more remote motif-forms', completing the 'antecedent'. The consequent begins with a repetition (which might be slightly varied, as indeed was the second phrase of the sentence).

2.5 *Formal procedures*

Returning to Schoenberg's metaphor of the living organism for 'form', the elements of form (or subdivisions of the musical work) are articulated by means of various processes which Schoenberg identifies and describes. In general, the processes identify the means by which the 'parts' interact with and relate to each other. As in the 'elements of form', some of the terms used to describe 'formal procedures' are often explained in terms of each other, and polarities between two separate (but not necessarily 'opposite') viewpoints are a frequent feature of the argument.

2.5.1 Coherence

The technical definition of Schoenberg's notion of coherence is best illustrated by the following description found in *ZKIF*:

> Two ideas cohere if one of them contains a part of the other. The relationship is stronger {if} ... the more important (more essential parts) are held in common...[70]
>
> Coherence is based on repetition, in as much as parts of A recur in B, C, etc.
> Example: If a whole G consisted of parts A - B - C - D - E and
> part A consists of a b c f g
> part B consists of a c g d e
> part C consists of a b c e
> part D consists of a f g
> part E consists of f g c then the whole also consists of
> a b c d e f and the parts have good relationships with each other.[71]

A number of features can be discerned in this description. The first feature is that it resists alignment with a particular level.[72] The definition addresses 'parts', resisting direct (or singular)

70. Schoenberg 1994: 17.

71. Schoenberg 1994: 25.

72. The abstract nature of coherence thus defined echoes Dahlhaus' argument that 'Developing Variation' is another principle of Schoenberg's which is, based on the examples cited, intentionally abstract. For a discussion of the difficulties of finding the appropriate level of abstraction, see Dahlhaus 1987: 130.

alignment with 'motif', 'motivic features', '*Gestalt*', theme, phrase or any of Schoenberg's 'elements' discussed earlier.

Secondly, the 'coherence of the whole' is not so much based on the succession of 'parts' (A, B, C, D and E) as upon the presence of recurring sub-parts (a, b, c, d, e and f). The principle of coherence *per se* does not suggest an ordered process, only that identifiable sub-parts are reiterated. The identity of the smaller part has been abstracted from the idea itself, and on account of the recurrence of those identities, the whole is said to have good relations between the parts.

Thirdly, as a corollary to the above, successions of the sub-parts will 'generate' the distinct parts through their reordered recurrence or omissions. Although not expressly stated, the generality of the model suggests that the sub-parts themselves may be composed of distinct composite elements. The principle of coherence can thus be nested within another identifiable coherence suggesting a recursive model.

Finally, the *ZKIF* manuscript shows that Schoenberg's coherence does have a relative aspect given the 'connections between two ideas'.[73] This aspect is articulated in the form of a list of possible types of connection between 'features held in common'.[74] Although the contents of the list itself are not particularly illuminating, its existence in a sense corroborates the approach of Collisson, although Schoenberg also offers the warning:

> For the *significance of the parts held in common*: 1) an absolute standard cannot always be found; 2) in the course of events, this standard will change its significance, or may even lose it.[75]

For Schoenberg, it is the context which determines the significance.

2.5.2 Repetition, variation and developing variation

The article 'A Self-Analysis', dated 1948,[76] presents a useful perspective in which the mature Schoenberg reflects upon his compositional techniques from what he refers to as his 'first period', with particular reference to one of his own recurring theoretical polarities: that between simple repetition (which would include sequential repetition or 'little-varied' repetition) and the more

73. The sense of 'idea' here (or 'two ideas') in this 1917 manuscript refers to a local level, and so seems distinct from the more global sense that 'idea' was to claim in the 1934 *Gedanke* manuscripts.
74. Schoenberg 1994: 19. The list to which I refer is the section which is titled '5.)'.
75. Schoenberg 1994: 19. The italics are Schoenberg's.
76. Schoenberg 1975: 76-79.

aesthetically merited technique of developing variation. The former, in the form of 'sequences', he admits to being evident in the 'final section' of his symphonic poem *Pelleas und Melisande*, whereas the latter, 'variation often with far-reaching changes', can be found in the first string quartet (Opus 7). The compositional proximity of these works to the repertoire chosen for analysis suggests this polarity is of significant value in the analysis of these works.

The point is further expanded in the 1946 article 'Criteria for the Evaluation of Music', where Schoenberg cites Brahms as an example of a composer whose works exhibit the characteristics of developing variation.[77] Significantly in the same passage, Wagner, and his followers, Bruckner, Wolf, Richard Strauß, Debussy and Puccini are deemed not to have made use of that technique, as their compositions comprise passages of mainly unaltered 'sequences and semi-sequences'. Such works, in deference to popular appeal, exhibit too much material that is repeated without significant variation, and are thus less meritorious.

Citing this polarity, Dahlhaus regards Schoenberg's developing variation as useful in distinguishing the motivic processes of Wagner from Brahms.[78] He does not adopt a pejorative view (as perhaps these writings of Schoenberg do), and so defends modulatory sequence as the appropriate domain of the music drama. Developing variation 'would not penetrate the listener's awareness in performance' where drama is the focus of attention, while sequential writing on the scale and in the manner in which it occurs in Wagner and Liszt could 'strike the listener as unwelcome tonal discursiveness and pompous rhetoric' in the concert hall.[79]

The polarity between 'simple repetition' (which could include sequential repetition) and 'developing variation' appears throughout Schoenberg's theoretical works examined here. The polarity is succinctly formulated in the chapter on motif in *FMC* which details a further category of 'motivic repetition' that effectively mediates between the two called 'variant' or 'modified repetition'.[80] This encapsulates the situation in which a motif is 'embellished', yet such variation

77. See Schoenberg 1975: 129.

78. See Dahlhaus 1987: 128-133 and 1980: 45-52.

79. Dahlhaus 1980: 51.

80 In Schoenberg 1967: 8 he writes, 'But changes [to the basic motif] of subordinate meaning, which have no special consequences have only the local effect of an embellishment. Such changes are better termed *variants*.' This appears to correspond with the classification 'modified repetition' on page 9, where Schoenberg lists three types of ways in which 'a motive is used by repetition'. Neil Boynton, in a yet-to-be published paper presented to the Hochschule für Musik und darstellende Kunst, Stuttgart - 'Die Formenlehre der Wiener Schule. Bemerkungen zu Arnold Schönbergs

does not lead to new 'motif-forms' and is thus of 'no special consequence' in the overall articulation of form. The category is evident in the earlier writings as well, like in *ZKIF*, where one can find Schoenberg's earliest references to 'developing variation' – thus he contrasts an 'embellishment' type of variation (corresponding with *FMC*'s 'variant' or 'modified repetition') with 'developing variation' itself:

> One can distinguish two methods of varying a motif. With the first usually the changes virtually seem to have nothing more than an ornamental purpose; they appear in order to create variety and often disappear without a trace ... The second can be termed developing variation. The changes proceed more or less directly toward the goal of allowing new ideas to arise.[81]

The *Gedanke* manuscripts are less categorical than *FMC*, perhaps due to the more intricate arguments which seek to describe 'the musical idea'. In the section on coherence, variation in general is cited as a type of repetition.

> Variation, therefore, is that form of repetition in which a number of the constituents are repeated without change, while a number of others are omitted and possibly replaced by different components.[82]

In this section, sequences are described as an intermediate form of repetition, which could bring about a modulation. Variation itself is discussed at length in other sections.

The manuscripts in *MI* offer several references to and discussion of 'developing variation' itself. The following quotation epitomises the formulation:

> When we speak of varying, we mean the process of variation.
> Of particular significance is the developing variation, in which the varying aims at producing new Gestalten that will then be used motivically and will generate further new Gestalten. An apparent contradiction can be cleared up here, namely, the question of the status of slight 'unrest' in the secondary, tertiary, etc., motives. Does it have an effect there too? Etc. This question is to be

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Fundamentals of Musical Composition, Anton Weberns Vorträgen *Über musikalische Formen* und Leopold Spinners *A Short Introduction to the Technique of Twelve-Tone Composition* (as part of the series *Musiktheoretisches Denken und kultureller Kontext. 'Nationale' Traditionen im historischen Wandel*) - has observed that in the German version (*Die Grundlagen der musikalischen Komposition*, ed. Rudolf Stephan, Wien 1979) the passage which describes 'modified repetitions' (succeeding the term in the text) actually pertains to 'developing repetitions'. Neil Boynton observes that the English version is missing text (a version of which is supplied in the German version). Certainly the description of 'modified repetition' in the English version would seem to correspond with the explanation of 'developing variation' in the last paragraph on p. 8.

81. Schoenberg 1994: 39.

82. Schoenberg 1995: 155. This manuscript is entitled 'Coherence'.

> answered simply in the affirmative: the secondary, etc., motives are stages in the presentation of the idea that is on the way from unrest to rest.[83]

Precisely how 'developing variation' does this is explained elsewhere in the manuscripts:

> According to the laws of coherence, all new Gestalten and hence also all new phrases, sentences, themes, etc. come about through the variation of the basic motive. This means that some of its characteristics will be retained and others meaningfully altered.[84]

Intrinsic to the idea of 'developing variation' is the establishment of new *Gestalten* by manipulating aspects of previous *Gestalten.* In a developing variation, as in other forms of variation, some aspects of the original are retained intact, some are omitted and still others are exchanged for alternatives. These aspects may be rhythmic features, intervals, melodies, or even harmonies as suggested in the list of possible means of variation in *FMC.*[85] The difference suggested by 'developing varation' is the establishment of new *Gestalten.*

One further aspect of developing variation which positions it outside the domain of temporal linear development is suggested in the final paragraphs of the 'Coherence' section of the *Gedanke* manuscripts. In discussing the 'repetitions which serve the development of the idea' (as opposed to the limited scope for development offered by the sequence), Schoenberg proposes that developing variation can be 'retrospective' in its characterisation of connections between *Gestalten*:

> A very significant degree of remoteness from the initial Gestalt is to be found in those variations that introduce a subordinate idea. Often their connection to the Grundgestalt (frequently an indirect one) becomes clear very late. As a rule these Gestalten develop forward hardly at all but rather backward: they approach the initial Gestalt.[86]

This addresses Dahlhaus's concern that within Schoenberg's compound term 'developing variation', the developing part implies a goal-directed process of development (entelechy) that seems to contradict what he writes of the musical idea.[87]

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83. Schoenberg 1995: 231.
84. Schoenberg 1995: 137. Although this quote does not mention developing variation, the concluding remark in the section is that 'The principle of homophonic music is "developing variation"'.
85. See Schoenberg 1967: 10.
86. Schoenberg 1995: 159.
87. See Dahlhaus 1987: 132-133. Dahlhaus uses the 'entelechy' viewpoint to confront an alternative view, that 'motivic shapes and relations that serve to present an idea are collected together in an

The analyses will therefore seek to classify variations into one of three types, after the three identified in *FMC*. 'Unvaried repetitions' (which will include sequence), 'variants' (which will comprise embellishments which do not give rise to new motif-forms and/or *Gestalten*) and 'developing variations' in which some parts are retained while others are replaced (thus maintaining coherence), with a view to establishing new motif-forms and/or *Gestalten*.

2.5.3 Liquidation

The term 'liquidation' is used by Schoenberg throughout his theoretical works from the reference to the concept in *HL* of 1911 through to *FMC*,[88] although the earlier instances in the *HL* and *ZKIF* are references to the concept rather than definitions. All references are characterised by a notion in which latent tendencies of either motif (in the case of the formal theories) or harmony are suppressed. In this sense the concept is reliant on other aspects of Schoenberg's theory, such as the 'obligations' of the motif or the centripetal tendencies of the tonic within Schoenberg's harmonic framework.

The most succinct definition offered is that found in *MB* which describes the process as 'a method of getting rid of the obligations of the motif'.[89] As noted above, the phrase 'obligations of the motif' is unique to *MB* – the definitions offered in *FMC* are more expansive, and it is given a context within the notion of 'development':

> Development implies not only growth, augmentation extension and expansion, but also reduction, condensation and intensification. The purpose of liquidation is to counteract the tendency toward unlimited extension.
> Liquidation consists in gradually eliminating characteristic features, until only uncharacteristic ones remain, which no longer demand a continuation. Often only residues remain, which have little in common with the basic motive.[90]

The overall context of this is Schoenberg's notion of a 'sentence' structure, which makes clear that Schoenberg believes the motivic liquidation effects the cadence as much as do the harmonic

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imaginary simultaneity' to provide a kind of dichotomy of 'constitutive elements' of Schoenberg's musical thinking. The cited passage indicates that Schoenberg had no concept of entelechy within his notion of 'developing variation', nor did he tend to regard development in any way as 'reminiscent of growth from a seed', thus challenging Dahlhaus's description.

88. See *HL* (Schoenberg 1975: 207-8), *ZKIF* (Schoenberg 1994: 39), *MI* (Schoenberg 1995: 252-255, *MB* (Schoenberg 1942: 11 and 16) and *FMC* (Schoenberg 1967: 58-59).

89. Schoenberg 1942: 15.

90. Schoenberg 1967: 58.

cadential chords. Exactly what form an 'uncharacteristic feature' might take is suggested by the following reference in relation to the Scherzo form:

> ...This is accomplished by the technique of liquidation, i.e. by gradually depriving the motive-forms of their characteristic features and dissolving them into uncharacteristic forms, such as scales, broken chords etc. [91]

The following passage which follows on from the penultimate quote above, suggests that the associated metrical reduction is commonly found, if not actually part of the concept of liquidation itself:

> The liquidation is generally supported by a shortening of the phrase . Thus in [Op 2 No 1 and Op 2 No. 3] the two-measure phrases are reduced or condensed to one measure (in m. 5-6); and in [Op 10 No. 1] four measures are condensed to two measures (m. 9-10 and 11-12). This procedure sometimes results in still smaller units.[92]

The examples themselves are worth examining in detail. Op. 2 No. 1 and Op. 10 No. 1 both illustrate a process whereby the motif established in the first few bars becomes a scalar fragment at the cadence point. In the first, the scalar fragment is part of the initial *Gestalt*, and it is this bracketed three-note scalar fragment which Schoenberg finds in overlapping forms in the final phrase. It is interesting that he does not find Motif 'b' in bars 7-8, presumably because too many features of 'b' have been altered (that is most notably, the rhythm, the overall span of a third, and the way the figure of Motif 'b' concludes 'inwards' finishing on a note which has already been articulated, rather than a new note of the scale, as does the passage in bars 7-8). It is indeed different material that is presented in the last two bars, in that they consist of the 'uncharacteristic' scalar features of the original *Gestalt* .

In the Op. 10 No. 1 example, the situation is quite different. The scalar fragment is not part of the original motif, indeed, it is not introduced until the second half of the sentence structure, being sustained by the fact that Motif 'd' of the original phrase features in the *Gestalt* in which the scalar fragment is contained (spanning bars 9-10). Part of the rhythm of Motif 'd' (minim-crotchet), is that which the scalar fragment (Motif 'e') assumes (in conjunction with derivatives of Motif 'd' in the LH) in the scale-forming 'liquidation' that concludes the sentence (bars 13-16).

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91. Schoenberg 1967: 152.

92. Schoenberg 1967: 58-59. The works cited here are Beethoven piano sonatas, and Schoenberg's examples (Examples 52a-c) cited below appear on page 63 of the text.

The example offered by Op. 2 No. 3 is different yet again, in that it does not conclude with a scalar or broken-chord figure; rather, it concludes with a sequential repetition of the motif 'f' from the initial *Gestalt*, which has been incorporated into a cadential figure that could be described as a *cliché*.[93] One could argue that this represents yet another way in which the obligations of the motif are (temporarily) neutralised – characteristic features as presented by the motif have given way to a context (a harmonic cadence) which makes the features 'uncharacteristic'.

In the earlier *ZKIF* and *MI* manuscripts, the idea of liquidation is expanded somewhat in the context of an extended example of developing variation from Mozart's String Quartet in C major, K.465.[94] The 'liquidating forms of the motif' of bars 7 and 8 indicate that the original motif has indeed been reduced to scalar fragments, which bring about a temporary cadence across bars 8-9. The *Gestalten* of bars 18-19 are also liquidated forms of the original motif by virtue of its rhythm - here the liquidated form is represented by the 'broken chord' type. The augmentation of rhythms (bar 16 which varies 'b' in bar 6) generates a 'broadening' effect which Schoenberg also suggests is characteristic of 'liquidation'. Moreover, the transitional passage (bars 22 onwards) establishes the new theme by liquidating the 'figures and *Gestalten*' of the old. This is achieved by metrical reduction (bars 22-25) and by use of the 'liquidating forms' of the motif (bars 26-28) that include the 'sixteenth note variant' (bar 28) which derives from the liquidated form in bar 18-19.

This detailed examination of a few of Schoenberg's examples show that liquidation can take on many forms, the recurring factor (albeit rather non-technical) being the idea of a motif or *Gestalt* losing some (or all) of its 'characteristic features' (as defined in the section on motif above), and being replaced by 'uncharacteristic' features such as scales.

The formal function of a liquidation is similarly varied (as will be also be emphasised by the discussion of 'loose formation' below). The examples in *FMC* tend to relate to bringing about close, but this is not necessarily the case. The Mozart string quartet example from *ZKIF* and *MI* shows how liquidation might function in a transitional section: the obligations of one motif being

93. Although Schoenberg does not point it out, the LH of bars 7 and 8 could also be bracketed (beats 2-3, 4-1 etc.) to demonstrate further instances of Motif 'f'.

94. The example used in *ZKIF* (Schoenberg 1994: 40-43) is given greater clarity in *MI* (Schoenberg 1995: 252-255).

neutralised so that a derivative can be formed and stabilised. The overall process is classified as one of 'developing variation' in which liquidation holds a pivotal role.[95]

The many forms and functions of Schoenberg's 'liquidation' therefore, represent an important process in the way motifs evolve and relate to each other, and the analyses will attempt to identify instances of the process and discuss how it is represented in Schoenberg's works.

2.5.4 Stable and loose formation

Although these two constructs form a polarity which is claimed by Carpenter and Neff to be Schoenberg's 'most basic shaping principle',[96] the only definitions of stable and loose formations *per se* come from the *Gedanke* manuscripts. Carpenter and Neff argue that the term 'loose formation' corresponds with the references to 'loose structure' and also 'loose construction' in *FMC*,[97] although those references appear to offer a somewhat localised view of a concept which does not permeate the text of *FMC* as do, for example, 'motif' or 'variation'. This suggests a degree of caution in assigning importance to these terms: it is crucial that their meaning is endowed with the utmost clarity.

As suggested by the subtitle to Schoenberg's description of the concept, the 'stable formation' is essentially the establishment of a theme.[98] It does this by means of repressing the 'obligations of the motif', hence imposing stability on the motivic content:

> 'Motivically speaking, one can say: the smaller components ... are for one thing not extensively developed, for another not developed in such a way as to become anything different, since the intention is to show different aspects of the Grundgestalten, thereby suggesting their flexibility and thereby at the same time fulfilling the condition of repeating these Gestalten as often as possible ...'[99]

Schoenberg points to his *Wind Quintet* Op. 26 to illustrate the concept, although the twelve-tone basis of this work tends to obscure a meaning which is more easily grasped in the familiarity of a

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95. C.f. the essay 'Connection of Musical Ideas' from the *SI* collection: 'A liquidation can, at one point or another, cease to eliminate; instead it can begin to develop and add new features. It then will have changed into a transition. A transition must have a goal.' Schoenberg 1975: 288.
96. See Schoenberg 1995: 49. The extended commentary which precedes the text offers an interpretation of the notes which follow.
97. See Schoenberg 1967: 204 and 184.
98. See Schoenberg 1995: 177.
99. Schoenberg 1995: 177.

tonal context,[100] and Schoenberg's second example, the opening of Beethoven's Op. 2 No. 1, offers a clearer view of the limited development of motivic material, and of the stability formed by the cadence in conjunction with the 'liquidation' of the motivic content.

The meaning inferred by Schoenberg's concept of 'loose formation' is perhaps more elusive. The relevant section in the *Gedanke* manuscripts includes in its title 'liquidation',[101] a technique which by its definition neutralises 'the obligations of the motif'.[102] Although this association is not explicitly developed in the following text which one takes to be definitive of the concept, the discussion on 'Dissolution, Liquidation' penned on the same day, makes extensive reference to 'the opposite of establishment, stable formation':

> ... in dissolution the most important thing is to let go as quickly as possible of everything characteristic, to allow tensions to ebb, and so to neutralise the obligations of the earlier Gestalts as to liquidate, so that a clean slate, so to speak, is effected, providing the possiblity for something different to come forward. If, further, the.tendency of the stably formed is concentric, that of dissolution is eccentric.[103]

The text goes on to cite the Mozart C major quartet (K465) as an example of this, with 'liquidating forms' of the motifs and *Gestalten* forming the central ground of Schoenberg's analytical commentary.[104] To be sure, 'loose formation' is not referred to explicitly in this section, yet it would be hard to not identify 'loose formation' with 'dissolution' and liquidation (as indeed do Carpenter and Neff in their commentary) all of which are characterised by the 'neutralisation of the obligations of the motif/*Gestalt*'.

There appears to be a hint of contradiction, in that Schoenberg's 'loosely formed' liquidating technique is also evident in his example of its opposite, the 'stable formation' (i.e. the first bars of Beethoven's Op. 2 No. 1). In their examination of the Mozart quartet, Carpenter and Neff propose that the shaping principles (stable/loose formation) operate on many levels, therefore implying that it would be conceivable that a single 'theme' could be classified in terms of both

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100. The commentary offered by Carpenter and Neff goes some way to explaining exactly how the term 'stable formation' is to be understood in the context of the first movement of Schoenberg's Op. 26. See Schoenberg 1995: 49-53.

101. See Schoenberg 1995: 179.

102. See Schoenberg 1942: 15. Liquidation has been discussed more fully above.

103. Schoenberg 1995: 253.

104. Schoenberg uses the same passage of this quartet to illustrate 'developing variation' and 'liquidation' in *ZKIF*. See Schoenberg 1994: 38-43.

functions on separate levels of structure, although the nature of the levelled structure is not expanded upon, and indeed this is not part of Schoenberg's discussion.

There certainly is a degree of ambivalence on the part of Schoenberg towards the term 'loose formation' which can be gleaned from the description he puts to 'loose formation' itself:

> A connection is loose if the parts are capable of a certain amount of independent motion (eccentric tendency?), which can go so far as to allow individual parts perhaps to escape from the association ...
>
> The most important feature of loose associations is probably the slight or merely external similarity of their connected parts. A good example of this is the arioso (and some lieder), in which often the parts are connected only by means of a common accompaniment. Other forms of superficial coherence also belong here.[105]

Although the first paragraph accords with the interpretation offered by Carpenter and Neff, the last seems to suggest a different direction. This is perhaps anticipated by the question mark he places against the parenthesised 'eccentric tendency', and is represented by the idea he later suggests by the term 'superficial coherence', and in the examples he gives such as 'arioso (and some *Lieder*)' which contrast with the sonata movement to which Carpenter and Neff refer.[106] The *Gedanke* publication must be regarded, after all, as a posthumously published set of notes which we know Schoenberg was constantly revisiting. By the very nature of their publication they cannot be regarded as Schoenberg's final word on their various subjects, and this detailed examination supports the view that they should only be used to bring further clarity to concepts and ideas which have been articulated elsewhere.

Therefore, in the light of the difficulties, and despite the importance which Carpenter and Neff attach to it, this polarity will only be applied in the context of a clear indication of which particular meaning has been invoked, while the other terminology developed here, such as liquidation, developing variation and sentence structure, which represent a more specific level, will be preferred.

105. Schoenberg 1995: 179.

106. Nevertheless, the references to 'loose' in *FMC* are made in respect of the 'subordinate group' or 'lyric theme' (otherwise known as the second subject group) of the 'sonata-allegro form'. See Schoenberg 1967: 184 and 204.

2.6 *Analytical strategies*

The current study has chosen not to use a classification system (like that of Collisson) even though it is clear that significant results can be obtained, as Collisson, Schmalfeldt and Boss demonstrate. In the first place, Schoenberg does not offer any such system in respect of *Grundgestalt* and motif (as he does in respect of, say, harmonic region, as will be discussed below), and in order to further the objective of analysing Schoenberg in his own terms such classifications appear irrelevant. Secondly, the works addressed here are tonally based, and it would thus seem appropriate to adopt harmony as one of the parameters in the model.[107] Although one might conceive that 'harmony' replace the 'boundary notes' (which are used to good effect by Collisson in the repertoire he addresses, but are perhaps not so useful in the tonally-based, small-scale works addressed here), it would makes the process of creating a hierarchy of parameters much more difficult. That is, the answer to the question of whether a motif-form which retains the harmony and not the rhythm of the original is closer to that original than one which retains the rhythm and not the harmony, is probably highly dependent on context.

Following Schoenberg's examples, therefore, the analyses will proceed by examining how motifs are used to articulate formal components. Thus, motivic connections between phrases and *Gestalten* will be highlighted, by labelling distinct motif-forms with separate Greek letters. Motivic features within these motifs or *Gestalten*, such as intervals or rhythms, which are found to be common to distinct motif-forms, will be labelled (independently) with small Roman letters. By examining the relationships between the motifs or *Gestalten*, the extent to which they are derived from each other can be assessed, and an argument regarding the identity of the *Grundgestalt* can be proposed. This approach is general enough to capture something of the *ad hoc* discussions which characterise Schoenberg's descriptions of 'developing variation', in respect of, say, the C major quartet of Mozart,[108] the Brahms A minor quartet,[109] or his own

107. As the subsequent analyses show, a significant aspect of a motif's repetition is whether or not it is harmony-specific, i.e. whether it is bound to the harmony of its initial instance. Recall that harmony was not adopted by Collisson, even though he admits it is a feature of Schoenberg's definition of the motif.

108. See Schoenberg 1994: 41 and 1995: 255 and 343.

109. See Schoenberg 1995: 140 and 1975: 430.

Kammersymphonie.[110] Importantly, this level of generalisation will not preclude the possibility of describing connections which emerge through later motivic forms.

Motivic similarity will thus be loosely defined in the terms set out above in the discussion of Schoenberg's conception of variation from *FMC*: repetition, variation and developing variation. The analyses will identify and describe motifs in terms of their component parts, alongside any changes or processes of evolution that they undergo. These observations will support a more general view of the overall phrase structure, which will draw upon some of the other components discussed here, such as cadence, liquidation, or sentence structures.

110. See Schoenberg 1995: 139 and 262-265. A brief commentary on the latter example is offered by Dunsby and Whittall 1988: 76-77.

Chapter 3: A harmonic perspective

3.1 *Introduction*

The importance of harmony with respect to Schoenberg's compositional and theoretical thinking is underlined by the following passages which he wrote in the mid-1930s:

> ... On the contrary, harmony fulfils structural purposes; that is to say, it is the framework and, indeed, probably the blueprint of every musical edifice, and everything that happens in a piece through motivic development, variation, elaboration, and thematic work results not only through the participation and the effect of harmony but in particular as a direct consequence of its function.[1]

> Not only the position of the parts but their form can be fixed by assistance of tonality. Whether something be principal or subordinate idea, introduction or transition, episode, bridge, connecting link, embellishment, extension or reduction, whether independent or dependent and, further at which moment it begins or ceases to express one of these formal characteristics – all this is possible for masters of form to make manifest through harmony.[2]

The first presents the articulative components of his formal theory through the perspective of harmony, while the second presents the function of harmony from a formal perspective. Focusing on harmony's role as a basis for the articulation of form, the passages underline the interdependence of form and harmony as well as proposing the basis upon which analysis can make a separation of these parameters.

Although the 'style of harmony' (tonal, atonal or 12-tone) was in a sense a variable for Schoenberg, he regarded the comprehension of tonal harmony as a basis for all harmonic explication,[3] and indeed his theoretic legacy includes two substantial books devoted to that end. As to the value of harmonic explication for analysis, and the importance of a theoretic context, one finds a hint of ambivalence in *HL*:

> I do not deny that it would benefit the pupil to account for the harmonic procedure in masterworks. But to do this in the way it should be done, i.e. by examining the harmonic structure of an entire work and the significance of the individual chords and chord progressions,

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1. Schoenberg 1995: 309.
2. Schoenberg 1975: 278.
3. Schoenberg himself argues that the evidence for this is provided by his theory of the emancipation of the dissonance (see Schoenberg 1954: 193). The general argument is lucidly presented in this chapter in *SFH*, 'Apollonian evaluation of a Dionysian epoch'. See Schoenberg 1954: 192-196.

> would be impossible within the limits of a harmony course. Yet, anything else is relatively pointless.[4]

Nevertheless, the *HL* is in stark contrast to the later *SFH*, in that it does not make use of illustrations from the musical literature to support its theses, preferring Schoenberg's artificially created choral-style examples. The multitude of 'illustrations from the musical literature' in *SFH* on the other hand effectively proposes a direction for how the 'harmonic structure of an entire work' and the 'significance of the individual chords and chord progressions' might be presented in the context of Schoenberg's harmonic theory.

A superficial examination of the *Lieder* of Opp. 6 and 8 which form the subject of this study shows that diatonic chords predominate (at least at points of cadence) while the existing analytical studies suggest that tonality operates as an element of structural importance.[5] This indicates an important direction for the current analytical study to take into account. Moreover, the fact that Schoenberg makes references to two of the *Lieder* from Opp. 6 and 8 in these theoretical works, arguing that their harmonic domains are of structural importance, suggests that these harmonic domains be investigated in the context of Schoenberg's theory of tonality. However, the sketchy examples in *SFH* as in *FMC* make no claims to present complete analyses of their analytical subjects tending to be rather fragmentary in their nature. An analytic presentation based on these examples of Roman numeral-type classifications risks being regarded as analytically weak.

Dahlhaus, for example, argues that Schoenberg's analytical techniques display an underlying theoretical weakness in dealing with Brahms and Wagner on account of the fact they invoke a separation of the dimensions of a composition:

> The individual elements of musical composition - harmony, counterpoint, motivic technique, and musical syntax - are not mutually independent: each one individually can be described, its functions defined, only with reference to the others and to the effects each has on the others. Any attempt to write a history of harmony which dealt with pitch relationships in isolation would be too abstract to have any useful application: '*schlecht abstrakt*' in Hegel's phrase.[6]

Schoenberg's separation of harmony from phraseological syntax in his analysis of Wagner (*Tristan*, Act 1, Scene V, bar 215 '*War Morold dir so wert*')[7] is regarded as the root cause of the

4. Schoenberg 1978: 16.
5. See for example Frisch 1993 and Wintle 1980.
6. Dahlhaus 1980: 64.
7. The analysis is quoted from Schoenberg 1954: 107.

weak analytical observations offered by chordal identification. Dahlhaus's argument would perhaps be more convincing if Schoenberg's original text had not mentioned the 'quasi-sequential repetitions' as well as the initial ♭II-V progression in F minor which Dahlhaus prefers. Schoenberg's point is that, in the wider context of the harmony, the final three bars represent a minor dominant relation to B minor, the tonality around which the entire scene has 'hovered'.[8] The suspended tonality to which Dahlhaus refers is very much a matter of surface detail:[9] Schoenberg is invoking the wider perspective presented by his 'complete' theory of harmony in which he considers the various possibilities for harmonic interpretation. In terms of the presentation of analysis this demonstrates the necessity of the separation of parameters in order to focus on the detail of a single parameter.

The Roman numerals which underpin the analysis of *Lockung* and *Der Wanderer* have been subjected to scrutiny by Dunsby and Whittall, who found in them:

> a conspicuous weakness or at least under emphasis in the analytical results. It is the inevitable consequence of Schoenberg's unsophisticated approach to voice-leading (though ... this makes *SFH* a genuine part of the theory of harmony in the Schenkerian sense, appropriately restricted to an abstracted and consistent aspect of musical structure).[10]

Thus the analytical insight offered by the 'Roman numeral' approach depends on exactly what the numerals represent in terms of the underlying theory and its consistent application in analysis. In this way a form of hierarchy of harmonic events, which significantly expands the single dimension implied by a Roman numeral approach, is at least conceivable. This suggests two issues in the description of a suitable analytic method based on a Roman numeral or 'functional' approach to harmonic explication.

Firstly, the relationship between the Roman numeral itself and the musical surface must be sufficiently and consistently presented. Secondly, the relationships between the various numerals

8. I use the term 'hovered' loosely, because the justification of B minor as the central tonality of Act 1 Scene V would require considerable analysis, not to mention theoretic clarification and definition. Nevertheless, Schoenberg's monotonal/regional model would presumably provide at least as useful a framework for such a work as does the opposite 'fragmentation' approach suggested by Dahlhaus. The former suffers from insufficient theoretical definition, the latter risks compromising and trivialising the sophisticated use of keys adopted by Wagner.

9. In fact it is unlikely that Schoenberg would have regarded this type of passage as representing suspended tonality in any case.

10. Dunsby and Whittall, 1988: 79-80.

must be identified and classified in some meaningful way so that their role in the context of the tonality of the whole is presented with clarity.

The objective of following sections will be to address these issues, with the purpose (as in the previous chapter) of defining a consistent means of analysis following Schoenberg's own writings and methods. In order to establish the analytical domain, the first section will establish a difference between Schenkerian theory and that of Schoenberg. This will be followed by an examination of Schoenberg's theory from the viewpoint of *SFH*, and a final section, which presents the methodology that will inform the analyses.

3.2 *Schenkerian theory and Schoenberg's harmonic analysis*

3.2.1 Prolongation and Schoenberg's harmonic analysis

Discussions of Schoenberg's harmonic theory invariably invite comparison with Schenker. In a study which attempts to identify an analytical method focused on the emancipated dissonance itself, Whittall cites Schoenberg's own harmonic analyses to support the idea that a connection between Schoenberg's conception of harmony formulated in *SFH*, and 'prolongation' exists:

> it appears that the possibility of any harmonic event being prolonged – linearly extended in time by melodic processes not involving the establishment of new or different chords – is one which Schoenberg accepts.[11]

For example, the B♭ pedal which extends from bars 20-22 (and indeed in the preceding bars 11-14), is portrayed by Schoenberg's figures as exerting a dominant function extending through what could be regarded as a set of chord changes, but it is rather characterised as being chiefly brought about by melodic concerns. Indeed, this dominant function would be regarded as structurally significant in the context of the E♭ major Schoenberg proposes as the overall (albeit non-articulated) tonal centre.[12] The annotation in Schoenberg's *Lockung* example representing 'free auxiliary' notes,[13] corresponds with the annotation in the *Der Wanderer* example which it

11. Whittall 1993: 2.

12. See Schoenberg 1954: 111. In the description which accompanies the analysis of *Lockung*, Schoenberg does not actually describe the melodic processes which do not involve 'the establishment of new or different chords', as he does in the preceding description which accompanies the Op. 6 No. 8 extract (p. 110) explaining the 'free passing notes and suspensions' as being 'merely melodic but not harmonic'.

13. The symbol is '+'. See Schoenberg 1954: 109.

follows, representing 'free passing notes and suspensions'. The text explains their harmonic function as being 'merely melodic but not harmonic'. The following passage from *HL* concurs with this classification of structural function:

> In general the free suspensions do indeed appear far less often for the sake of harmony than as a result of the melodic elaboration of parts. The melody, the motive, is then responsible for them, if one does not wish to regard the whole composite as a chord. One's inability to regard it as a chord does not mean it is not a chord, but rather that it is not like any of those that appear in the system.[14]

Thus, for Schoenberg, the 'free' suspensions (or even 'non-harmonic' tones) which can be adduced from a process of taking vertical slices through the texture arise from the compositional design of the horizontal domain – the melody and (by extension) the motif – and so the fact that they cannot be classified as chords is indicative of an inherent weakness of the harmonic system which constructs that classification.

This opposes Schenkerian analysis and the term 'prolongation' which asserts that, although the 'free suspensions' themselves do not have a chordal classification, there is a restriction (based on the model of strict counterpoint) on how 'free' the suspensions can be. In testing the *Lockung* example against Straus's four necessary conditions for prolongation,[15] one would have difficulty in arguing that the extended tonality from *SFH* could represent a clear distinction between consonance and dissonance (Condition 1),[16] and identifying an unambiguous hierarchy within that consonance that would fulfil the scale degree hierarchy condition (Condition 2). But it would be impossible to classify the 'free suspensions' etc. created by the motifs of *Lockung* in terms of a limited number of the prolongation types which the 'embellishment condition' requires (Condition 3) – they are simply too 'free'. This has ramifications for Condition 4, the harmony/voice-leading condition which demands a clear distinction between the vertical and the horizontal, and leads us to Schoenberg's own point that in 'more modern' music this distinction is less secure.

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14. Schoenberg 1978: 323.

15. For Straus's four conditions for prolongation, see Straus 1987: 2-6.

16. This is not to deny the possibility. A major problem can be found in both *HL* and *SFH* where Schoenberg presents dissonance in the context of the emancipation of the dissonance: as 'merely more remote consonances in the series of overtones', and so a categoric distinction would contradict part of his theory. Nevertheless, one could proceed by using as a basis for consonance all triadic structures (including the 'substitutes') and all regions, labelling all content that couldn't be classified in such terms as dissonant.

To present this in another way, prolongation takes place precisely at the point when the prolonged object is absent.[17] If the means by which the object is projected at this point does not refer to some form of external model that encapsulates the object (i.e. if the means do not in some way symbolise either the actual prolonged object or a relationship with it) then its analytical power is considerably diminished and it differs categorically from Schenker's model. Such is the case in *Lockung*, and returning to Whittall's judiciously qualified comment on prolongation, it would appear that the prolongational objects which are 'linearly extended in time by melodic processes not involving the establishment of new or different chords', lack the form of substantiation by those melodic processes required by Schenkerian prolongation. Straus has offered the view that such prolongations are in fact not representative of prolongation, but rather reflect an 'association'.[18]

Although this distinction appears to position Schoenberg's theory in a less favourable light than Schenkerian theory, the following sections will propose that this apparent deficiency is counterbalanced by its flexibility and its own capacity to not only characterise a region but also indicate a further aspect of 'coherence'. This will be demonstrated in the analyses which follow. But in order to understand the context it is necessary to focus on the key components of Schoenberg's harmonic theory. The following sections will examine the tenets of his theory as presented in *HL* and *SFH*, before returning to the issue of the comparison with Schenker, prior to formulating an analytical method.

3.3 *The components of Schoenberg's conception of harmony*

3.3.1 The 'structural functions' of harmony

In *HL* Schoenberg portrays the tonal system as being in constant evolutionary flux.[19] This portrayal is extended to the consonance-dissonance polarity (as described above, he finds no

17. This argument is proposed by Straus. See Straus 1987: 2.

18. See Straus 1987: 7-8. Straus has more recently confirmed this distinction in separating 'prolongational' and 'associational' voice-leading models in a study of 'atonal voice-leading'. See Straus 1997b.

19. Schoenberg does not regard tonality as an eternal law (see Schoenberg 1978: 27), but the result of an evolutionary process whereby composers of all periods (defying the restrictions imposed by theorists) are continually bringing new factors to the basic process of imitation of nature. That is, bringing the natural material (the tone) into a relation with the 'organ of perception' – the ear. (See Schoenberg 1978: 313.)

absolute distinction between consonance and dissonance) portraying the polarity in terms of the distance between a fundamental and its overtones: the further the interval, the greater the dissonance, the smaller the interval the greater the consonance. Schoenberg himself regards this view as being in direct conflict with that of Schenker who defines the limit of consonance at the fifth harmonic.[20]

However, the actual 'structural functions' of harmony as presented in *SFH* are not built on the consonance-dissonance polarity, but rather the idea of chord progression: chords progress to either establish or contradict a tonality or region,[21] otherwise a group of chords can be regarded as a 'succession' which is 'functionless'. Chord progressions are based on the relationships between roots and are classified into types. 'Strong' (or ascending) progressions in which the root moves a fourth upwards or a third downwards, are classified as such because the root of the first chord is 'overcome' and appears in the harmonics of the second.[22] The grouping of these two progression patterns together as 'strong' is consistent with Schoenberg's harmonic conception of the cadential function,[23] in which the tonic may be approached by both V or III.[24] 'Descending progressions' are formed by roots moving in the opposite direction to those of 'ascending' progressions (down a fourth or up a third) and the two are given a theoretical context:

> ... in planning our root progressions we shall give absolute preference to the ascending progressions and shall use the descending ones primarily in those chord connections where the total effect is still that of ascent.[25]

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20. For Schenker's distinction between consonance and dissonance see *Harmony* (Schenker 1954: Section 9-11 and Section 73). Like Schoenberg, Schenker also derives pitch relations from the harmonic series. Schoenberg claims to have browsed through Schenker's text published in 1906, as he questions Schenker's premise in the chapter on non-harmonic tones in *HL* (Schoenberg 1978: 318).

21. See Schoenberg 1954: 1.

22. In *HL*, Schoenberg bases this on what he identifies as two opposing forces: (1) between tonic and subdominant and (2) between tonic and dominant. The tendency of the dominant to move towards the tonic makes use of the same force as in (1), hence the necessity to balance such forces by initially exerting (2). In this way chord progressions which 'express' a tonality or region will attempt to balance the 'equal and opposite forces'. See Schoenberg 1978: 23-4. The *HL* description of ascending and descending progressions appears in Schoenberg 1978: 116-123. This corresponds closely with the more succinct *SFH* description (Schoenberg 1954: 6-9).

23. See Schoenberg 1978: 130 and 134.

24. Chord VII can also be employed, the free use of which is characteristic of Schoenberg's theory in *HL*.

25. Schoenberg 1978: 120. This is also implied in *SFH* (see Schoenberg 1954: 8).

A further category is defined as 'super-strong' chord progressions, where the roots of the two chords are a second apart and, because all the notes of the first chord are replaced by the notes of the second, there are no common tones between the two chords. The use of this classification for harmonic analysis has been proposed,[26] and although it has yet to find universal acceptance, its suitability for the determination of 'chord progression' will be referred to at various points in the analyses which follow.

3.3.2 The importance of scale degree

In terms of the theory, however, a much greater weight is accorded the concept of scale degree and its ramifications for harmonic expression. A number of passages from *HL* and *SFH* point to the degree to which Schoenberg's theory of harmony is contingent upon scale degree.

> It should be mentioned now, however, that much of what I will say in evaluating the degrees, i.e. in showing their capabilities for forming progressions, chord progressions, is based on this notion: that the tonic is the governor and the dominant is the governed.[27]

This places the focus of the theory as not so much an assessment of progression *per se*, but rather more an account of tonality and the means by which it is expressed through the degrees.[28] Thus for Schoenberg, 'scale degree' represents an aspect of the expression of key or region. In his initial explanation of the diatonic chords in *HL* Schoenberg stresses the importance of relating chords to their context by using the terminology of scale degree:

> The triad on I is of course a major triad for it is the triad from which the corresponding major key gets its name. The other two triads that are constructed the same way, those on the IVth and Vth degrees, are also customarily called major triads. The expressions 'F-major triad' and 'G-major triad' are used in this sense. This terminology is actually false and misleading. In C major there is only one triad that may be known as the 'major triad', the one on the 1st degree. The other two, on IV and V, should never be called 'F major' or 'G major', because one could mistakenly think the expressions refer to a key, to a tonality, namely, to the keys of F major or G major.[29]

That is, chords in his *Darstellungssystem* should have, if they are to avoid being dismissed as 'false and misleading', a context in terms of key and scale degree which is also extended to the minor

26. For example, see Haimo 1997: 74 and 76. Although Haimo asserts that the chord successions in *Mädchenlied* are based upon the principle of strong progression, he does not demonstrate it in the score.
27. Schoenberg 1978: 33.
28. This quotation, and indeed the assessment, directly confronts that of Haimo cited in Chapter 1: 18.
29. Schoenberg 1978: 32.

tonality.[30] As will be shown below, the scale degree remains the focus in his explanations of chromatic phenomena,[31] and is also a key component in his famous argument which dismisses the notion of non-harmonic tones:

> Yet I have shown even of chords referred to degrees that many did not originate harmonically and at those places I shifted to melodic justification ... The harmonies held to be accidental are chords; it is clear that they are usable as such, and had the system not been abandoned here, then this mode of presentation could have been continued. This continuation had to be denied those theorists because they did not recognise these harmonies as chords.[32]

Schoenberg's argument is that his own model is consistent, if traditional, because he attempts to relate all chords to degrees. Accordingly he raises the issue as to whether it was necessary for other theorists, whom he represents as being inconsistent, to abandon such a system. The point in the current context is the importance to which he associates the relation of all chords to scale degree.

3.3.3 Chromatic notes and substitutes

Scale degree is also important to his discussions of chromaticism. The five chromatic notes are explained in both *HL* and *SFH* historically as the result of the influence of the church modes (Dorian, Phrygian, Lydian and Mixolydian) in relation to a given scale, whereby their effect within the scale will produce 'alterations'. Thus, in C major, the Dorian mode (the mode extending from D to D) will suggest its raised seventh, C♯, and occasionally its lowered sixth, B♭, the Phrygian will produce D♯ and G♯, the Lydian B♭, the Aolean G♯ and the Mixolydian F♯. Such notes are regarded as potential substitutes, with voice-leading governed by the model of the modes,[33] and in *SFH* Schoenberg rigorously traces the structural changes to chords that their substitution introduces.[34]

30. See Schoenberg 1978: 99.

31. See, for example, his discussion of the diminished-seventh, which he teaches as a ninth chord with omitted root (Schoenberg 1978: 193-195), where he reminds the student of the importance of relating such progressions to a degree by noting that the conceptual model thus formed will be a useful reference point in 'the construction of a pattern that is to be made the basis of harmonic variation' (Schoenberg 1978: 200).

32. Schoenberg 1978: 329.

33. The *HL* version also explains them harmonically by noting the ability of each scale degree to become the root of a dominant chord which would move (by an ascending progression) to the degree a perfect fourth higher, and so labels them 'secondary dominants' (Schoenberg 1978: 177). In this way Schoenberg links the explanation of chromatic phenomena to the principle of the ascending roots. These are also alluded to in *SFH* (Schoenberg 1954: 16-17), but the label

Substitutes are also examined from the viewpoint of their effect on harmony,[35] and in this context are described as transformations – that is, the chords of the (unaltered) diatonic scale are 'transformed' by altering their members. Thus, in much the same way as the modes exert influence on the 'unaltered' diatonic scale, the interaction of region and tonic conspire to create 'substitutions' in the harmonies based on the scale:[36]

> Richness and greater variety of harmony are based on the relationship between a tonality and its regions, on the substitutions which are produced in the harmonies through the influence of this relationship, and on the possibility of using harmonies in a manner different from their original derivations.[37]

The inevitable result of transformations of chordal constructs is the 'vagrant chord', Schoenberg's term for a chord which (like the diminished-seventh chord):

> is actually at home in no single key, is not the exclusive property of any; it is entitled, so to speak, to reside anywhere, yet is nowhere a permanent resident – it is a cosmopolitan or a tramp![38]

Schoenberg's vagrant chords (*HL*) or vagrant harmonies (*SFH*) are characterised by the lack of a perfect fifth between the root and fifth of the chord, which renders them dissimilar to other chords.[39] Schoenberg regards them as arising out of the 'logical development of the tonal system',

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'secondary dominant' is replaced with 'artificial dominant', perhaps to accord with the notion of 'monotonality'.

34. See Schoenberg 1954: 16. Example 30 details the alterations that the substitutes bring, classified by the resultant chord type.

35. That is, substitutes are presented in Chapter III of *SFH* in the context of scale alterations and voice-leading, while transformations are discussed in Chapter V in respect of vagrant chords (Schoenberg 1954: 15 and 35 respectively).

36. Once again this represents a significant expansion of an idea presented in *HL*, where the region of the 'minor subdominant' and its influence in terms of chromatic content (substitute tones) was presented as an antithesis for those of the 'secondary dominants': the former representing in a generalised sense the region of the subdominant, and the latter representing the dominant (Schoenberg 1978: 223). That is, *HL* presents two general sources for chromatic explication, one based on the 'secondary dominants' (on account of the influence of church modes), the other on the 'minor subdominant' (the region to which the tonic chord acts as dominant, and in a sense is pulled), once again governed by the principle of 'ascending' progression. The distinction between *HL* and *SFH* is that the latter expands the implication of the influence of the 'minor subdominant' region to all regions in order to produce transformed chords.

37. Schoenberg 1954: 35.

38. Schoenberg 1978: 195.

39. In fact, Schoenberg distinguishes two categories of vagrant harmony; those which are vagrant because of their inherent structure and those which can be made vagrant by artificial (presumably contextual) means. Schoenberg neither dwells upon nor gives examples of the latter. Roy Carter (Schoenberg, 1978: 383) suggests they correspond to the notion of 'roving harmonies'.

while at the same time bringing about a decay in music's capacity for unequivocal tonal definition.

One of the more characteristic techniques Schoenberg associates with vagrant harmonies is the way in which (given that a single vagrant chord-type may have numerous possible contexts) a vagrant may be approached in respect of one context and quitted by making use of another. In *SFH* Schoenberg calls this particular use of pivot tones (or more correctly pivot chords) 'multiple meaning'.[40]

The vagrant chords themselves are detailed in Table 3.1, with particular reference to their comprehensive presentation in *HL*. The table shows that all of Schoenberg's vagrants are modelled after a scale degree, which in turn has an appropriate chord of resolution.

Chord (Schoenberg's Description)	**Modeled after (chord)**	**Resolution**
Diminished-seventh	VII (i.e. V9 with no root)	I, IV, VI, III
Augmented triad	III (derived from III in minor)	I, VI
Augmented six-five Augmented four-three Augmented two *(German sixth)*	II9 (minor ninth chord with no root, flat fifth and raised third)	I6-4, V, III
Augmented-sixth *(Italian sixth)*	II7 (as above - no ninth)	As above
'Other vagrant' (p. 255-6) *(French sixth)*	II7 (raised third, lowered fifth - chord from the minor subdominant)	V I III Neapolitan
'Other vagrant' (p. 255-6) Tristan-like *(half-diminished-seventh)*	VII or II of minor	V, I, III Neapolitan

Table 3.1: Vagrant chords

The importance of their relation to the scale degree upon which the chords (which, containing substitutes, have been 'transformed') are based cannot be underestimated:

> Many such chords deserve the name vagrant harmonies because they seem to wander nomadically between regions, if not tonalities, without ever settling down. Nevertheless, every

40. See Schoenberg, 1954: 76.

> 'transformation' [altered chord] must be registered as a degree belonging to one of the regions; thus, even seemingly unusual progressions will prove to be normal.[41]

Thus the most important aspect of the chromatic phenomena is that underpinning such 'transformation' is the idea of scale degree and root progression. Root progressions are essentially progressions between scale degrees which can be altered through transformations or 'substitutes' in order to achieve variety and interest. Indeed, the interaction of scale degree, progression and transformation, is best described in the preface to *SFH*:

> It is important to relate 'substitutes' and 'transformations' to degrees, and to understand that they do not alter the structural functions of the progressions. They intensify the affinity between tones and promote melodically convincing part-leading.[42]

Considerable effort in the analyses which follow is directed at relating the substitutes to degrees, and indeed towards showing how the transformations contribute to the coherence of the whole.

3.3.4 Schoenberg's theory of region

In both *HL* and *SFH*, the sections introducing the 'substitute tones' herald their respective descriptions of region. Schoenberg's concept of region is in effect a formulation of the 'harmonic comprehensiblity' of a tonal work:

> The concept of regions is a logical consequence of the principle of *monotonality*. According to this principle, every digression from the tonic is considered to be still within the tonality, whether directly or indirectly, closely or remotely related. In other words, there is only *one tonality* in a piece, and every segment formerly considered as another tonality is only a region, a harmonic contrast within that tonality.[43]

In *SFH*, the relationship between region and tonic is brought together through this concept of monotonality, the implications of which effectively replace the four structural harmonic 'functions' discussed in *HL*.[44] It also provides a foundation for establishing the centricity of the tonic: it is after all the point to which deviations from the tonic (i.e. the establishment of the

41. Schoenberg 1954: 35.
42. Schoenberg 1967: xvi.
43. Schoenberg 1954: 19.
44. See Schoenberg 1978: 152-153. This is not to suggest that the notion of 'monotonality' is absent from *HL*, as the following passage suggests: '... it is more to the point to regard tonality as the large region in whose outlying districts less dependent forces resist domination by the central power' (Schoenberg 1978: 369).

regions) ultimately return;[45] but it is also the means by which all possible regions can be related to the 'tonic' (and through that tonic to each other) by means of the well-known 'chart of the regions'.[46] The proliferation of relationships which these charts present (there are 40 in Schoenberg's chart for a major tonality) suggests that some form of classification is required, and so five groups are introduced indicating 'distance' between region and tonic, generally according to the modulating procedure which Schoenberg demonstrates in the examples in Chapters III, VII and VIII of *SFH*.[47] Tables 3.2 and 3.3 below, present the contents of the 'Chart of the Regions' for major and minor respectively, arranged to show how the 'classification of the relationship' arranges the regions symmetrically around the diatonic scale in which the tonic is at the centre.

Descriptive Category	Chord		Symmetric Correspondent	
	Roman Numeral	*Schoenberg's term*	*Roman Numeral*	*Schoenberg's term*
Direct and close	IV	(SD)	V	(D)
	iii	M	vi	(sm)
Indirect but close	i	(t)		
(common Dominant)	iv	(sd)	v	(v)
	III	(M)	VI	(SM)
(proportional transposition)	♭III	(♭M)	♭VI	(♭SM)
Indirect	♭iii	(♭m)	♭vi	(♭sm)
	♯V	(MM)	♭IV	(♭sm SM)
	♯v	(Mm)	♭iv	(♭sm sm)
Indirect and Remote	ii	(dor)	♭vii	(♭mv)
	II	(S/T)	♭VII	(♭MD)
	♭II	(Np)		
Distant	♯I	(M SM) or (SMM)	♭I	(♭m SM) or (♭sm M)
	♯I	(M sm) or (SM m)	♭i	(♭m sm) or (♭sm m)
	♯IV	(SM SM) or (S/T M)	♭V	(♭mvSM) or (♭mM)
	♯iv	(SM sm) or (S/T m)	♭v	(♭mvsm) or (♭mm)
	VII	(S/T SM)		
	vii	(S/T sm)	♭ii	(♭mvm)

Table 3.2: The regions in major

45. 'All activity, all movement leads back to it; everything turns within the circle', Schoenberg 1978: 370; 'Even the apparently complete departure from the tonality turns out to be a means for marking the victory of the fundamental so much the more dazzling', Schoenberg 1978:151; and perhaps more generally, 'Monotonality includes modulation-movement towards another mode and even establishment of that mode. But it considers these deviations as regions of the tonality, subordinate to the central power of a tonic', Schoenberg 1954: 19.

46. Schoenberg 1954: 20 and 30.

47. This deviates to some degree from the presentation in *HL*, where once again the 'roots a fifth apart' principle governs the organisation of regions in accordance with the 'circle of fifths' (Schoenberg 1978: 154-155), although a number of qualifications are introduced in the discussions of the degree of 'remoteness of the relationship' (see, for example, 207 and the discussion of the minor subdominant in 222-225).

Thus, for example, the 'direct and close' regions consist of 'D' (a fourth below the tonic) and 'SD' (a fourth above the tonic), as well as 'm' (an 'unaltered' third above the tonic) and 'sm' (an 'unaltered' third below the tonic), and so on.[48]

Descriptive Category	Chord		Symmetric Correspondent	
	Roman Numeral	*Schoenberg's term*	*Roman Numeral*	*Schoenberg's term*
Close	iv	(sd)	v	(v)
	I	(T)		
	III	(M)		
Indirect but close	VI	(SM)		
	V	(D)		
Indirect	iii	(m)	vi	(sm)
	IV	(SD)		
Indirect and Remote	♯vi	(♯sm)	♯iii	(♯m)
	♯VI	(♯SM)	♯III	(♯M)
	♭II	(Np)		
Distant	All other regions			

Table 3.3: The regions in minor

3.3.5 Establishing regions

In *HL*, Schoenberg positions modulation as the reverse of the process of cadence, in that, while a cadence defines and confirms the tonality, a modulation serves to deny and negate the tonality through the process of installing an alternative tonality. In cadence, the 'expression of tonality'[49] is not just concerned with an appropriate chord progression, but also with emphasising the components of the key which distinguish it from its nearest neighbours (in particular, the tendency of a tonic to progress to its own subdominant, away from the tonic).[50]

Tonal (and by extension, regional) definition is thus achieved by an aggregation of scale degrees which denies the existence of other possibilities: modulation is enabled by the 'law of the common tone', in this case established by the tones common to the two tonal regions involved,

48. It could be argued that this symmetrical arrangement seems to govern the contents of the groupings even more strongly than Schoenberg's professed 'remoteness' criteria based on modulation technique. For example the 'dor' (an a abbreviation for 'dorian') region whose scale potentially shares six notes with the tonic, is surely significantly closer to the tonic than the S/T region and indeed its symmetrical correspondent the bVII region and the bvii. Yet they are all grouped under the title 'indirect and remote': as regards the dorian, 'indirect' perhaps, but surely not 'remote'.

49. See Schoenberg 1978: 129.

50. See Schoenberg 1978: 130. Moreover, this 'negation' is best achieved by use of the seventh (leading) note of the scale, on account of it being the note which would be flattened should the tonal direction turn towards the subdominant.

and finally achieved by use of pitch-classes which are not members of the former tonal area.[51] Dunsby argues that Schoenberg's concept of tonicity may depend on the notion of the aggregation of notes, and therefore forms a step on the path towards atonal and 12-tone music.[52] The implication is that, in Schoenberg's pre-12-tone music, pitch structure may form a structural process in itself organised by regional differentiation: regions are defined by aggregates of notes, yet relate to each other by the conventions of tonality.

3.3.6 Suspended and extended tonality

Schoenberg's description in *HL* of 'suspended tonality' (*schwebende Tonalität*)[53] offers two *Lieder* from Op. 6 and Op. 8 as illustrations. The structural context for an overall suspended tonality had been described earlier in the context of 'modulation':

> 3. From the outset the tonic does not appear unequivocally, it is not definitive; rather it admits the rivalry of other tonics alongside it. The tonality is kept, so to speak, suspended, and the victory can then go to one of the rivals, although not necessarily.[54]

Schoenberg describes on the one hand the tonality of *Voll jener Süße* as 'wavering between two keys (D♭ and B major), while on the other hand in *Lockung*, the E♭ tonality is 'expressed' without presenting its tonic triad 'in such a way that one could regard it as a pure tonic'.[55]

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51. See Schoenberg 1978: 156. 'One can say: because of the similarity of the scales, C major and G major have a number of chords in common. If we set down one of these chords independently, taken out of its context, then we cannot determine whether it belongs to the one key or the other ... Which way it is to be reckoned depends on what goes before and what comes after.'

52. See Dunsby 1982 and Dunsby and Whittall 1988: 77. The context of the former article is semiotic analysis, but at its conclusion, Dunsby proposes that Schoenberg's practice of 'evening-out' the number of pitch-class attacks may have more theoretic validity than is often recognised. He proposes further investigation in the context of nineteenth-century music.

53. Here I have translated the *schwebende Tonalität* in *HL* as 'suspended tonality', in accord with Schoenberg's explicit translation of *schwebende Tonalität* in *SFH* (in the context of *Lockung*) as 'suspended tonality'. In his *HL* translation Roy Carter translates *schwebende Tonalität* as 'fluctuating tonality' as in 'yet to be decided'. Carter distinguishes this from *aufgehoben Tonalität*, which he translates as 'suspended tonality' to suggest that the 'tonality itself is suspended' or 'not present'. (Schoenberg 1978: 383, see fn. 1).

54. Schoenberg 1978: 153. The quotation cites the third of four harmonic 'functions' represented by the *HL* concept of modulation in the context of a musical work. The first describes an extended cadence, while the second describes more distant modulation within the context of the tonic region in which the work begins and finishes. The last two categories are, however, more unique, and point to an overview of the tonal and pitch organisation within modern music, of which Schoenberg's own early compositions can be regarded as representative.

55. Schoenberg 1978: 383.

In his description of a methodology for achieving such effects, one can discern once again the emphasis on the principle of 'aggregation' as a mechanism for the articulation of 'tonicity'. Schoenberg proposes that a tonic be 'not too firmly' established (it should be 'loose enough to yield'), aided by the selection of two keys that have 'some chords in common',[56] such as the Neapolitan or the augmented six-five, with tonalities a semitone apart suggested. This opens the possibility of new relationships afforded by mixing the regions which are close to these tonalities. It is clear that in Schoenberg's vision the interplay between the tonalities of distinct regions thus presented forms the background to the overall harmonc structure, yet it is equally clear that these tonalities are expressed by articulation – by making use of members of their associated scale – rather than through a conception of prolongation (in which content is 'reduced' to reveal a fundamenal structure). The new chord progressions confront each other, their coherence governed by an interplay between region and tonicity defined by the overall context of the piece, the overall design of which is the regional conflict.

HL's concept of *schwebende Tonalität* appears to be subsumed under the more generalised category of 'extended tonality' in *SFH*, to which he devotes a complete chapter.[57] Extended tonality is brought about by 'extra-musical influences' and its effect on harmonic structure is described thus:

> Remote transformations and successions of harmonies were understood as remaining within the tonality. Such progressions might or might not bring about modulations or the establishment of various regions. They function chiefly as enrichments of the harmony and, accordingly , often appear in a very small space, even in a single measure. Though referring them to regions may

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56. See Schoenberg 1978: 384.

57. Carter's assertion that the 'roving' harmony of *SFH* conforms to *HL*'s *aufgehobene Tonalität*, is somewhat unconvincing, not least on account of Schoenberg's suggestion (384) that (in respect of *aufgehobene Tonalität*) its 'purely harmonic aspect will involve almost exclusive use of explicitly vagrant chords' whereas 'roving harmony need not contain extravagant chords' (Schoenberg 1954: 165). Carter's association of the two appear to emerge from *HL*'s description of *aufgehobene Tonalität*, in which he alludes to 'classical development forms' (whereas in *SFH* the primary domain of 'roving harmony' is the *Durchführung*). However, the *HL* description states that 'the classical development forms are *not too far removed from this*' and therefore does not indicate *aufgehobene Tonalität* is evident in classical development forms – the examples Schoenberg cites are Wolf, Bruckner and 'modern' composers. The current author's position is that 'roving harmony' represents a more generalised harmonic function (indeed, one of the 'structural functions' discussed in Chapter 1 of *SFH*) whereas *aufgehobene Tonalität* has a more concentrated 'late nineteenth-early twentieth-century' context, governed primarily by the 'theme' and its own structural functions. In general it remains outside the purview of *SFH*.

> sometimes facilitate analysis, their functional effect is, in many cases, only passing, and temporary.[58]

The chapter, in which he demonstrates establishment of and fluctuation between the regions, provides a large number of musical examples including quotations and regional/chordal analyses from 38 works taken from composers ranging from Bach to himself. The text of the chapter offers concise commentaries on these examples. The regions themselves are denoted by the symbols from the 'chart of the regions' indicating the relationship to the overall tonic, and Roman numerals which are either cancelled or not (representing chords which have been transformed or not respectively). There appears to be no rule about the maximum number of regions represented, although an over-riding sense of pragmatism prevails, and regions which are not well expressed or which have only a very local effect are not included. As a general rule there are no more than three regions described at any one particular time. The other symbols which are used include the '+' symbol which, as discussed above, is generally used to indicate a note or group of notes representing 'free' passing notes, auxiliary notes or suspensions, governed by melodic concerns.

One final term from *SFH* which warrants comment is the term 'roving harmony' which can be found within 'extended tonality', where a short succession of chords is unable to express a single region or tonality.[59] These passages are indicated in the examples by a succession of dotted lines, and a comment in the text.

3.3.7 The concept of 'level' in Schoenberg's harmonic model

Having examined Schoenberg's theory of harmony in some detail, it is perhaps appropriate to return to the oft-cited comparison with Schenker from a more general perspective than identified earlier. In her examination of Schoenberg's harmonic theory, Dale argues that the lack of specification of level is an inconsistency within his theory in that he fails to 'distinguish between harmonic and tonal relations, between chord progression and key succession.'[60] Dale's perspective is perhaps representative of a tendency for analysts and theorists well versed in Schenkerian theory to intuit levels when confronted with distinguishing between (to use Schoenberg's terms) 'extensions of a cadence' and a 'modulation'. While it is true that

58. Schoenberg 1954: 76-77.

59. See Schoenberg 1954: 3.

60. See Dale 1993: 14.

Schoenberg's 'structural functions' of harmony could be construed as a broadly conceived, levelled structure, Schoenberg did not present those functions in this way, and a comparison with Schenkerian theory ultimately serves to underline the significant differences between the two.

Thus, if one were to take the Schenkerian terms, background, middleground and foreground, it is possible to identify analogous parts of Schoenberg's own theory. For example, his regional structures and their interaction with the overall tonality of a work offer a tonal background to the work, although the richness and variety of the relationships is in stark contrast to the 'fundamental structure' which Schenkerian theory purveys.

A level analogous to a Schenkerian middleground is suggested by the way in which regions are expressed through chord progressions (as distinct from chord successions), which are identified by the use of Roman numerals. Chord progressions express regions through the notes they hold in common with the region (aggregation as opposed to prolongation). Not all chords (or vertical slices in the music) are selected for assignment to a Roman numeral, and a 'chordal function' may extend through a succession of chords often imbued with 'free suspensions, passing notes etc.'

This leads to the level of the surface. The relationship between a 'vertical slice' through the texture and the Roman numeral selected for its representation is in a sense analogous to a Schenkerian foreground. Indeed, a degree of interpretation (and reduction) will invariably be involved in the process of identifying an appropriate chord with the 'slice', such as illustrated by Schoenberg in the first bar of *Lockung*, where the initial E♭ and C♯ are subsumed into a 'dominant-seventh' chord with G root on account of the D♮ which intervenes. The basis of such reduction (free auxiliary), however, differs from the prolongational model (strict counterpoint) which it mimics, in that the notes are motivic and as such interact with other such motifs in the work. As noted earlier, the key difference to 'prolongation' is that these are 'free' suspensions, and rather than controlled by a model based on strict counterpoint, the harmonic freedom is the result of (or governed by) motivic or melodic process.

Thus, the presentation of Schoenberg's theory within the framework of a 'levelled structure' provides an instructive comparison with Schenkerian analysis, one which emphases the differences rather than cements a connection.

3.4 *Analytical method*

The analyses will attempt to follow the model of *SFH* as described above, where following Schoenberg's own example, Roman numerals beneath the systems in the scores will represent scale degrees, in support of a regional structure. The 'strikeout' character-effect will be used, following Schoenberg's example of 'cancelling' the Roman numeral designations, to represent chords that depict scale degrees which make use of 'transformations' or alterations. A small amount of figured bass will also be used in order to help provide clarity to the functional classifications.

The chords thus represented will be shown to underpin the regional structure and convey a sense of the 'extended tonality' which prevails. A commentary will examine some of the more difficult progressions indicating the way in which regions are supported by the scale degrees, and will refer to sources for unusual progressions or chord structures in *HL* and *SFH.*

Schoenberg himself has indicated a belief in establishing why harmonic progressions, and indeed modulations, move in the various directions which they take:

> Whenever a piece of music begins to modulate, it is the result not only of a series of harmonic events, but also of a series of melodic and rhythmic events ... It is ridiculous merely to point out that 'something else we can do with the diminished-seventh chord is ...' ... Analysis would far better show why a passage turns in a certain direction. And since the method of harmonic instruction is synthetic, the directions for the use of modulatory means must proceed from the 'because' ...[61]

Schoenberg's attack on theorists of the day, a recurring theme of *HL*, points to a direction in which he believes analysis can be useful: in focusing on the 'because'. A central objective of the harmonic analysis is to assemble the data concerning the progressions used and the modulations entered upon, identifying the ways in which Schoenberg's theory encapsulates the technical aspects of harmonic structure. Although this may at times appear overly detailed, it is necessary to assemble this data in order to address the overall objective of formulating a model of Schoenberg's 'because'. The conclusion chapter will interpret the regional structure of each work in the context, as the first sentence of the above quote suggests, of the *Grundgestalt* and the motivic structure.

61. Schoenberg 1978: 163.

These analyses and the regional model which they produce will be used to confront the 'post-tonal' perspective (discussed in the next chapter), in which an alternative (yet equally valid) view of the organisation of pitch material will be presented. The results of this confrontation will serve the individual interpretations of the *Lieder*, but will also form a basis for methodological comparison in the final chapter.

Chapter 4: A post-tonal perspective

The term 'post-tonal' may at first seem rather ill-chosen. The works which form the subject of the current study are perhaps not sufficiently post-tonal themselves to warrant such an approach. Nevertheless, it has been adopted on two counts. In the first place (and most obviously), the approaches which the perspective embraces highlight elements of the composition which are similar to those of later twentieth-century compositions. Post-tonal in this sense suggests the idea of compositional situations in which tonality does not govern the structural process that is the object of analysis. It is clear that this does not preclude the possibility that a separate perspective may indeed show certain elements of a composition to be dominated by tonality.

Secondly, it reflects the fact that the formalisation of the analytical methodologies comes from the period which is post-tonal itself. That is, it is significant that the post-tonal perspective represents methodologies which are 'of our age', and it purposely looks for elements of the contemporary in the context of what has gone before. This is particularly evident in the case of Lewin's 'generalised' theory, which seeks to identify common 'transformational' models for eighteenth- to twentieth-century music but, as will be argued below, is also evident in analysis based upon pc-set genera. It is therefore appropriate that such methodologies should make use of the 'tools of our age', such as computer technology, to facilitate the calculations involved in the analyses.

Although a number of theories and analytical methodologies are potentially available to the post-tonal perspective, its focus will be upon the single theory which has had the largest technical impact on the analysis of post-tonal music during the last quarter of the twentieth-century. The use of pc-set theory is sufficiently widespread to alleviate the necessity to define its parameters in this study.[1] However, the fact that this repertoire does not naturally fall within the remit of set theory suggests that a short justification and refinement of its use be offered. Therefore an initial section will discuss the relevance of Fortean methodologies to the works which are the subject of this study, focusing on the particular features of set theory that will be used, while an extended second section will describe and develop the existing theories of pc-set genera.

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1. The definitive text on set theory is Allen Forte's *StrAM* (Forte, 1973). Other texts which discuss the issues pertaining to set theory include Rahn 1980, and Straus 1990. Rahn expands set theory through detailed examination of the issues raised by *StrAM*, whereas Straus's work looks to place set theory within a wider twentieth-century analytical context.

The pc-set mechanics entered upon in this study have been facilitated by a custom-designed computer program for MS Windows-based IBM computer and a description of the algorithms underlying the program will be included in the subsequent chapter. A full user guide is included in Appendix B, and an installable copy of the program and its database is included in the inset in the inside of the back cover of this volume.

4.1 Pc-set theory

4.1.1 The appropriateness of set theory

As noted in Chapter 1, it appears particularly appropriate to examine the 1903-5 songs from the viewpoint of set theory in view of Forte's claim:

> What might be called 'set-consciousness', then, begins here, in the 1905 songs of Opus 6, written between September 6 and November 28 of that year, after Schoenberg had returned to Vienna from his first stay in Berlin.[2]

It is appropriate that the current study will examine the evidence for Forte's claim of 'set-consciousness' in respect of the entire set of songs written between autumn 1903 and summer 1905, as the idea has been the subject of considerable criticism. An example can be found in a relatively recent study of the early Schoenberg by Frisch:

> Forte bases his suggestion principally on what he analyses as a frequent recurrence in the songs of Schoenberg's 'musical signature', a six-note set made up of the pitch equivalents of letters from the composer's last name. Forte's analyses seem to me farfetched, in that to find the signature, he must often acknowledge complementation, transposition and inversion of the set, atonal operations with which Schoenberg is not likely to have been acquainted at this time.[3]

Presumably, Frisch distinguishes categorically between the 'atonal operations' of transposition and inversion acting upon an unordered set of notes (i.e. a pc-set), and those operations acting upon a theme or motif. Examples of the latter abound in Opp. 6 and 8, as will emerge from the analyses presented below within the context of the composer's perspective.[4] It can be surmised,

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2. Forte 1978a: 138.
3. Frisch 1993: 216, footnote 29.
4. The current study concludes that there is in all probability a subtle distinction between Schoenberg's notion of 'ways in which a motif might be varied', and the more rigorous mathematical operations defined by Lewin in his transformational theory. Nevertheless, the opening theme of *Natur* and the later recurrence of the vocal melody of *Voll jener Süsse* are examples of strict inversion.

therefore, that the focus of Frisch's criticism is the pc-set understood exclusively as an unordered set of notes and the issue he raises is whether relationships (inversion, transposition and complementation) between such entities have any validity in this repertoire.

Leaving aside for the moment the complementation issue, it can be argued that the criticism levelled at the inversional equivalence assumed by set theory appears to be based upon a misunderstanding of what the unordered set of pitch-classes represents. Although 'set membership' is an important part of set identification, manipulation and comparison, an equally important property of an unordered set of notes (which, in the context of an analysis, have been associated by some form of segmentation) is the set of interval relations which hold between the pitch-class members. In set theory this is reflected by the fact that the 'interval vector' has been accorded as much emphasis as set membership.[5] Indeed, although there are numerous replications of interval vectors amongst distinct pc-sets (represented by Forte's Z-relations), it is from the reduction of the intervals to modulo 6 (within the interval vector) that the concept of the pc-set appears to have grown.[6] Because the interval vector (whether modulo 6 or modulo 12) which is the embodiment of the various 'distances between' the pitch-class constituents, is unable to distinguish between sets which are, in Rahn's terms, 'Tn/TnI'-related (inversion *or* transposition-related) or 'Tn only'-related (transposition only-related),[7] it is difficult to make a strong case for upholding the distinction between the two. Thus the notion of 'unordered set' seems to suggest Tn/TnI, and the assumption of octave equivalence in construing the prime form of a given set in itself provides a sufficiently strong argument for maintaining inversional equivalence in discussions of pc-sets. Moreover, when dealing with verticals or chords, the interval vector, in as much as it reflects the intervals between the notes, takes on an intuitively more important role. It is interesting to note Jack Boss's observation of a similar distinction in

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5. See Forte 1973: 1-18, in which the definition of a pc-set in terms of membership is followed by an equally comprehensive discussion of the interval vector. C.f. Lewin 1987, in which the author starts his discussion of the generalisation of Forte's set theory by generalising the interval vector.

6. This is evident from Forte's own writings. In Forte 1973: 21 he acknowledges that his 1964 article (Forte 1964) had 'unfortunately' taken the view that non-Tn/TnI-related sets be deemed equivalent.

7. See Rahn 1980: 75-77. C.f. Lewin 1987: 104-106. In Lewin's terms the distinction between TnI/Tn and Tn-only is captured by his notion of the 'canonical group of operations'.

respect of Schoenberg's analysis of the Op. 22 *Orchestral Songs*, in that Schoenberg's concept of motive is more closely bound to 'ordered interval succession' than to 'ordered pitch succession'.[8]

This argument underlines set theory's main usefulness in its capacity to characterise or identify a distinct pattern of intervals existing as the result of relations between an unordered set of notes. It thus becomes a property of that set of notes. By noting the identification label (or pc-set name), the analyst is in a position to compare the interval structure with that of other such sets of notes. In tonal music such analysis might be expected to offer a singular view in which a limited number of sets might prevail. Specifically, within the horizontal dimension, the sets of the diatonic scales would be expected to dominate, embedding the majority of the pc-sets generated by the various melodic lines. In the vertical dimension (i.e. chords) the majority of harmonies in a tonal work are based upon major and minor triads (which are of the same set-class), and most other constructs (dominant-sevenths, augmented-sixths, half-diminished-sevenths) would embed the pc-set which represents the major and minor triads. Of course, in tonal music there are separate processes that describe more clearly how harmonies interact with one another – mere identification of the harmonic unit is not sufficient.

However, while music of the late nineteenth and early twentieth century is still dominated by triadic harmonies, it is possible to identify relations between thematic elements which are beyond the scope of conventional motivic identification. It can also be contended that the thematic elements themselves are seldom derived from diatonic scales and in many instances exhibit characteristics such as inversion, symmetry, transpositions based on maximum common-tones etc., which one might expect to find in more explicitly post-tonal music. There is also the possibility that vertical chords or collections of notes forming the total pc content of a distinct segment can be projected linearly (or thematically) through pc-set relations. Set theory is, of course, ideally suited to identifying relations between segments and interactions between the horizontal and vertical planes.

8. See Boss 1992: 131. To be sure, Boss's point is also the fact that the motif is defined as an ordered interval succession. Nevertheless, the distinction being drawn here has a clear analogy to a distinction of which Schoenberg was well aware.

4.1.2 Relevant aspects of set theory

Although the current study assumes a working knowledge of Fortean set theory, and a full description and/or critique will not be offered, there are some aspects which require comment in order to introduce the developments of pc-set genera proposed here.

An important element from set theory adopted by the current study is the 'inclusion', or 'embedding' relation as it is also called.[9] If Set B is embedded within Set A, then a form of Set B will exist within Set A. A is thus a 'superset' of B, and B is a 'subset' of A. A given set will have a number of sets (of smaller cardinality) which it embeds alongside a number in which it itself is embedded. The aggregate of these two groups forms the group of sets with which it shares 'embedding relations'. Intuitively, the embedding relation would appear to be the construct which underpins Forte's conception of the 'set complex' which he divides into the K complex and Kh sub-complex,[10] but this is not entirely true. Forte's conception adds to inclusion the notion of complementation, in which a pc-set (i.e. an unordered set of non-repeated notes) implicitly presents a division of the twelve notes of the chromatic scale into the notes that are represented by the set *and* those that are not. The latter forms the 'complement' of the set and a set's complement forms part of the definition of Forte's two complexes.[11]

If two sets so defined are Kh related this means that both sets *and* their respective complements are either embedded within or embedded by those of the other. The more general K sub-complex connects two sets, in which either: (a) Set A is Kh related to Set B; (b) Set B has embedding relations with A (but not with its complement); or (c) Set B has embedding relations with the complement of A (but not with A itself).[12] It is important to note that, in practice, Case (b) refers to relations between larger and smaller sets, specifically those whose cardinalities are greater than 6 in relation to those of cardinalities smaller than 6. Case (c) relates two sets whereby *both* are either of the 'greater than 6', or of the 'less than 6' type. This generalisation is possible because

9. 'Inclusion' (as in 'the inclusion relation') is used by Forte (see for example Forte 1973: 25) and followers whereas 'embedding' is the term used by Lewin (Lewin 1987: 105). Lewin generalises the concept through his notion of the embedding number - EMB (X,Y). Embedding is preferred here in that it identifies Lewin's more generalised concept.

10. In *StrAM* the K* relation is not defined as a sub-complex as such, although much of what is said about the Kh sub-complex could be extended to the K* notion which he applies to hexads. See Forte 1973: 98. The current study takes this view. For further discussion of K* and justification for this undertaking, see footnote 12, below.

11. See Forte 1973:94-96.

12. Note that this sentence informally expands the definition given in Forte (Forte 1973: 95).

nearly all non-hexadal sets are contained within their complements.[13] Therefore, if, for example, an eight-member set embedded a seven-member set, then (exceptions 5/7-Z12 aside) it would also embed the corresponding five-member complement and be Kh related, thus is already counted in 'Case (a)' above. The same situation prevails in respect of nine-member sets and eight-member sets where there are no exceptions.

In examining K relations between sets of which one is a hexad, Forte has noted the importance of distinguishing between the case where the hexad and other set hold an embedding relation, and the case where the embedding relates to the complement. K relations properly identify the latter, whereas the 'K*' designation has been used to identify the former.[14]

It is perhaps unfortunate that set theory has not provided a means for distinguishing between K and simple embedding (which could be captured by the expansion of K* to a full complex, as suggested in the previous footnote) in analytical practice, as considerable critical discourse has been devoted to the issue of the integrity of the 'K' relation in its 'non-embedding', complement-based form, such as that of Frisch referred to above,[15] whereas the arguably more valuable K*-type relations have not been able to be distinguished.

In addition, the most important problem with Forte's desire to engage the complementation issue in defining his set complexes, is the fact that it excludes the prospect of embedding relations between sets of inverse-related cardinalities: that is, relations between sets of seven and five members, sets of eight and four members and even between sets of nine and three members. The lattermost case is less important, as most nine-member sets embed all twelve three-member sets, but the other two cases testify to the exclusion of a potentially significant set of relations.

13. The exception to this is set 5-Z12 which is not embedded within 7-Z12 and vice-versa. Importantly, there are two supersets of 7-Z12 which do not include 5-Z12: 8-8 and 8-11, and the relationship between 7-Z12 and 8-8 & 8-11 is K* and not 'just' K. Similarly 5-Z12 embeds 4-8 and 4-11, which are not embedded in 7-Z12.

14. Note that in *StrAM*, Forte implies that the term 'K*' is restricted to hexads. See Forte 1973: 98, footnote to Example 101. However, K* (like its conceptual relatives Kh and K) is essentially a relationship between *two* sets. In this way the notion of the set complex is 'reciprocated' between the two pc-sets, in the sense that while the K* holds for (here) 6-Z12 in respect of 7-4, 7-5 etc., one must also say that K* holds for 7-4 in respect of 6-Z12. The idea underpinning the use of K* to denote relations with hexads, therefore, necessarily has application beyond hexads. Indeed, as described in the previous footnote, the case of 5-Z12 bears similarity to that of the 'Z-type' hexads, in that it embeds 4-8 although its complement 7-Z12 does not. This has informed the practice in the current study whereby the K* relation will not be restricted to hexads, and, as proposed in footnote 10 and amplified below, K* in the current study will constitute a set-complex of its own.

15. See p. 75.

Although numerous simple instances of complementation have been discovered,[16] it appears unlikely that the more subtle relations represented by Case (c) of the K complex are of particular significance in these early works. Although such complementation relations may exist, the overall pitch control exerted by a form of tonality (identified by the other perspectives) suggests that the complementation of the K complex is unlikely to generate structural processes. If such K complex-type relations were cited, it would be difficult to defend their existence against the criticism that they had occurred by chance. Indeed, the simple embedding relations and the various instances of direct complementation, where a segmentation reveals a set associated with its complement, do provide a surprisingly ample model of connectedness in respect of set relations. K complex relations will therefore hold very limited significance in the analyses which follow.

This discussion suggests the following strategies be built into the computer program described in Chapter 5 and used in the pc-set analyses which follow. The embedding relation (represented by K*) will form the core and most important relation of the complex. All three relations, K, K* and Kh can be regarded as distinct complexes, of which Kh will be a subset of K*, as well as being a subset of K. In a slight deviation from Fortean set theory, K* will not be portrayed as a subset of K because K* will include the embedding relations between the given set and those of the inverse-related cardinalities. Nevertheless, in respect of K and Kh, the relations will be portrayed hierarchically. This 'hierarchy' will be reflected in the graph, as the highest-level relations between two sets will be the one that is displayed. In order to present as much information as possible, the graphs generated by the program will regard complement-related pc-sets as distinct entities, in order to show the K* relations between sets of complement-related cardinalities. It will also show the similarity relations between sets of the same cardinality,[17] although such relations will not be definitive of the complex itself.

4.1.3 Segmentation

For the purpose of the following discussion, segmentation refers to the way in which the analyst breaks up or 'segments' the work for the purpose of pc-set analysis. In practice, this involves a decision-making process in which the analyst will select small segments of the music in order to

16. That is, an association can be made between two sets in close proximity whereby the sets are complement-related. Often this occurs within a phrase (where the first notes of a larger phrase form the complement of that larger phrase) or within a segment of harmony, where a larger set's complement is articulated by some feature of the texture.

17. Similarity relations are defined as per Fortean pc-set theory as defined by *StrAM* (see Forte 1973: 46-60).

submit them to the pc-set analysis. The criteria on which those decisions are based are an area which frequently raises concerns, and it is necessary at the outset of an enterprise such as the current study, to outline the basic principles which underpin those criteria.

The selection process itself might best be depicted as arising from the tensions between two hypothetical 'polarised viewpoints': the analytical and the theoretical perspective. The hypothetical analytic perspective posits theory (in this case pc-set theory) as a truism, and proposes that the model of the complex will always be interesting, no matter what the results might be. Thus, all segmentations which are submitted to the scrutiny of pc-set theory would be deemed valid. The segmentation would proceed by taking into consideration all contiguous segments which are articulated as such by means of phrasing, texture, instrumentation and rhythm. Indeed, the process of segmenting the work could be made on the basis of a different 'theory', such as Schoenberg's theory of form or Doerksen's 'salience theory',[18] the point being that the segments are selected in *isolation from pc-set theory itself*. There would be no restriction to segments of three to nine distinct pitch-classes, no privileging of six-note segments,[19] no restriction on the numbers of different pc-sets,[20] and no omissions of segments whose sets would not 'fit' the graph of the complex. Doerksen's analysis of Berg's Op. 2 No. 4 may be regarded as an analysis in which the segmentation (and its underlying process) tends towards this viewpoint.[21]

On the other hand, the hypothetical theoretic viewpoint proceeds in isolation of the formal components of the musical work. The process of selecting segments that will be submitted to the pc-set analysis is made on the basis of whether they will improve the profile of the set complex. Segments whose pc-sets do not 'conform' would be omitted from the analysis. The search for sets of a certain kind dictates the course of the analysis and, in extreme cases, some collections of notes, in which their pc-set conforms to the model, might be deemed to be associated where they are not articulated as a segment in the music. The segmentation would be determined by the theory alone, in isolation from the musical phrasing or contextual associations inherent in the

18. See Doerksen 1998: 195.

19. Segments of six pitch-classes are singled out by Dunsby when he talks of not being alone in 'having taught, surreptitiously, "Hunt the Hexachord". That's the way you made a set-complex work, asking a student to interrogate whether that embarrassing challenger-set really mattered so much ...' (Dunsby 1998: 179).

20. Forte himself does not often generate analyses with large numbers of distinct pc-sets. See, for example, his comments on Doerksen in Forte 1998: 230.

21. See Doerksen 1998.

texture of the music. Forte's analyses of Liszt's music in which he finds instances of pc-sets projected linearly through the music might be regarded as examples of analyses in which the segmentation tends towards this theoretic viewpoint.[22]

The contrast between these viewpoints can be illustrated through Forte's notion of 'imbrication' promulgated by Forte in *StrAM*.[23] Imbrication is the analytical technique which breaks up a linear phrase into all possible contiguous sub-components which have at least three distinct pcs, in order to generate further sets that may have connections with other passages or chords. Assuming the process revealed segments that related to the set complex, the theoretical perspective would justify the technique on the basis of it revealing the theoretically significant sets in new contexts, arguing that it offers an insight into how the set complex itself is articulated at the surface level. The selection and inclusion of the segments would be constrained by whether or not those pc-sets were in the complex or not. The analytical perspective finds such techniques intuitively technical and 'unmusical' in that, without further information, they fail to identify segments that the music articulates in musical terms independently of a non-interpretative analysis.

In practice, the published discourse tends to steer a middle ground: the most successful analyses find a balance between the focus on sets that constitute a set complex imbued with inclusive nexus sets, and a need to cover as much of the musical texture as possible, making reference to segments in the music which are articulated by principles external to set theory. Morgan's advice to 'look for the simplest possible solution consistent with the actualities of the piece',[24] although suggesting a circular argument which offers little in respect of formal theory, appears to be more appropriate to the current problem of post-tonal segmentation than it was to its original context in supporting dissonant prolongation.

The current study will therefore demonstrate an awareness of both points of view, with a slight tendency towards the theoretical perspective. Its purpose is to demonstrate that underpinning the extended tonality and musical logic demonstrated by the analytical techniques and models outlined in the two previous chapters, there is a limited and consistent set of pc-sets which is

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22. See Forte 1987. Another instance of such a view can be found in Forte 1988b.
23. See Forte 1973: 83 and 209.
24. Morgan 1976: 67. Criticisms of this statement in relation to post-tonal prolongation have been numerous, but the first appears to be Baker 1983: 160.

indicative of an underlying sympathy on the part of the composer to a new intervallically-oriented 'sound-world', which stands in stark opposition to that of the triadic and diatonic sound-worlds of previous generations.

4.2 *Pc-set genera*

One of the directions in which Forte has developed his theory of pc-sets is towards a further means of classifying pc-sets and the relations between them in a systematic manner. The theoretical discourse, in which he identified this development of pc-set theory as pc-set genera, was published in 1988.[25] Marginally pre-dating Forte's theory,[26] Richard Parks published a theoretical study of Debussy which also made use of the notion 'genera' to apply to a theoretical formulation which identifies genera of pc-sets.[27] In a recent refinement of this work, Parks offers the view that he was aiming at a higher level of generalisation than Forte, contending that Forte's is one possible instance of his,[28] although in its original form, the differences are more categorical.[29] Together they form the main 'poles' around which subsequent research has evolved.[30]

The work of one further theorist in the field warrants close attention. Kennett, writing in the mid-1990s, offers a significant extension of Forte's theory, expanding the formulation of genera potentially to all pc-sets, through their K* complexes (which he calls 'Kd-complexes'), reformulating and generalising the profiling rules, and offering a comprehensive critique of the results.[31] In doing so Kennett foregrounds the connection between Forte and Parks, and in an important sense anticipates Parks's contextualisation of his own work in which he offers a more generalised view.

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25. Forte 1988a.
26. See Forte 1998, 230. Forte describes how Parks developed his theory before he had developed his own, although Forte's article was published before Parks's book.
27. See Parks 1989.
28. See Parks 1998a: 206, 'As a set of definitions, Forte's theory could be understood to constitute a "special case" within the terms of my more general theory'.
29. The point is developed more fully below.
30. The subsequent research was some time in coming. Apart from Kennett's important study (Kennett 1995), the first serious examination did not appear in print until 1998 when a complete volume of the journal 'Music Analysis' was devoted to pc-set genera, which was a culmination of a 'round table' session at the conference CUMAC 1997. See Dunsby 1998.
31. See Kennett 1995. Kennett's ideas will be discussed more fully below.

The models of Forte and Parks agree in their formulation of the way in which a theory of pc-set genera grows out of set theory by means of embedding relations (or Forte's notion of 'inclusion' discussed above).[32] They also agree in the way they align a defined group of pc-sets to an informal notion external to set theory, representing perhaps a 'scale-type' or a 'musical figure-type' (such as 'the octatonic', 'the whole tone' in the case of Parks,[33] and 'chroma', 'whole-tone', dia-tonal' etc. in the case of Forte).[34] Thus, while the set complex deals with the issue of how sets, representing small segments of the music, relate to each other to generate a comparative model, the examination of the pc-set genera attempts to answer a different question, that of 'what kind of sets' belong to this segmentation. Rather than 'how do sets relate to each other', it poses the question, 'what kind of sets are they?' At the simplest level the genera themselves represent a kind of 'empirical classification' of pc-sets which enables the analyst to assess how a work or a segment of a work relates to this classification. Forte writes:

> ... the system of genera offers an objective frame of reference for harmonic materials, one that is independent of any particular compositional practice, in the specific sense that none of the genera are derived empirically from actual music, but, true to the Pythagorean heritage, are constructed entirely on a logical basis from a few primitives.[35]

Forte's emphasis on the 'objective frame of reference' here seems to find sympathy with Parks's 1989 study which makes use of his own genera. Parks identifies four genera, corresponding to the diatonic, whole-tone, octatonic scales which form the 'cynosural' sets of their respective genera, and the chromatic genus for which there is no cynosural set. In respect of his diatonic genus, Parks writes:

> The large collections of pc materials that serve as abstract and concrete pitch resources for tonal pieces can be (and often are) represented by major and minor scales. These scales function as inventories ... Set 7-35 is cynosural for this genus; that is, its properties embody the essence of diatonicism and it serves as the primary focal point for interrelations among its family of subsets and supersets.[36]

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32. See p. 78 for a discussion of inclusion/embedding. As will be discussed more fully below, Forte's model of genera is based upon the more intensive 'inclusion plus complementation' as encapsulated by the Kh complex. The point here is that inclusion is an integral part of the Kh complex.

33. See Parks 1989: 324-332. These Appendices (2-6) contain the pc-set listings for each of the five genera he has formulated.

34. See Forte 1988a: 201. Table 10 shows a summary of the '12 Pitch-Class Set Genera', with the various 'informal descriptive terms' (200) which have been aligned to the genera.

35. Forte 1988a: 187-188.

36. Parks 1989: 57.

Throughout the genera-related sections of the book the segmentation of the pc-content is related to the four constructs through a notion of genera based on an external construct. However, there is a sense in which the allusion to external constructs is less evident in Parks's later formulation of the genera. Indeed, the distinction between the purpose of set complex (a set of internal inter-relationships between sets) and the purpose of pc-set genera (loosely argued here to be an embodiment of an external construct) is less clear in Parks's later writings such as Parks 1998a and 1998b, in that they tend to allude to an overall purpose of 'building a model' of the pitch-class content of the analytical object by searching for an elusive 'holy grail' – the perfect genus (or is it a perfect set complex?). He writes:

> In principle then, my theory should engender genus-models capable of providing a 'good fit' with any musical object's pitch constructs; indeed, in many instances a perfect fit! But fit is only half the problem. The other half is knowing the properties of the model and understanding its properties in some meaningful sense so that we can extend its positive analogy to the object.[37]

The difference in type of model between genus and set complex is less clear here, the obvious distinctions between the set complex and Parks's rules for genus creation notwithstanding. 'Knowing the properties of the model', is much more like studying a 'set complex' than creating a system of absolute differences which is governed by 'the objective frame of reference'. Throughout the following discussion this tension between the set complex and the pc-set genera (whether in respect of the models of Parks or Forte) and their respective functions will recur.

The following sections compare Forte, Parks and Kennett's respective conceptions of pc-set genera to identify common ground and distinctions, with a view towards formulating a generalised model that can be made accessible through the computer software included in this study.

4.3 *Forte's model of pc-set genera*

The system and its underlying theory is probably best discussed in terms of it being a concatenation of two parts. The first part consists of the conditions upon which Forte's twelve genera are formed and their rationalisation, at the core of which lie the 'Rules of Genus Formation',[38] while the second is based on profiling the genera in terms of a given segmentation, the main components of which are the set of Squo scores, which encapsulate the relationship

37. Parks 1998a: 212.

38. See Forte 1988a: 190-192.

between the genera and the segmentation, and the 'Rules for the Interpretation of Generic Relations'. The current section is not intended as a description of Forte (for which the reader is referred to the primary source or summary discussions in secondary sources); rather, it offers a perspective on the discussions within the extant secondary sources in order to form the basis of the subsequent analyses.

4.3.1 Forte's model: Part 1 – the rules of genus formation.

Rule 1, in declaring the alignment with and derivation from the Kh complex, demonstrates that the theory is strongly constrained by set theory: it is a refinement of the 'Kh' complex which stands firmly at the root of the rules for genus formation, and so is responsible for the high degree of consistency between the two.[39] When Dunsby raises the issue as to how far Forte's theory of genera might be deemed to supplant the set complex,[40] he identifies a key difference in the 'building blocks' for the system. The importance of the hexad as the basis for the set complex, appears to have given way to a new-found recognition of the role of the trichord, which had been the focus of pre-set theory studies of atonal music.[41] On closer investigation, it appears that the basis for Dunsby's pedagogy, 'hunt the hexachord',[42] is in fact less a measure of the significance of the probability of finding a given set of six notes above a given set of three notes,[43] than of Forte's closure property in respect of the set complex. That is, in 'classic' set theory the group of pc-sets formed by the complex around a general set of n-cardinality has the strongest relations within the group if the 'n' equals six.[44] In a complex built on a set of cardinal three, one cannot make any claims about the relationships between any of the other sets in the complex: the closure property does not hold at all for complexes built on sets of cardinal three.

The closure property (or lack thereof) is not directly discussed by Forte in his study of genera, although it is clear that Rule 2, through its further refinement of the Kh complex (or intersected complexes), of his 'Rules for Genus Formation' addresses some of the 'internal inconsistency' that the general lack of closure might bring about. Indeed, the closure issue is side-stepped in that

39. This is supported by Dunsby's observation. See Dunsby 1998: 178.

40. See Dunsby 1998. Forte's reply (see Forte 1998: 230-231) is perhaps what might be expected: that the two systems offer two different theoretical views, and are therefore in a sense complementary.

41. For example see Perle 1981.

42. Dunsby 1998: 178.

43. See Dunsby 1998: 177.

44. See Forte 1973: 104. Pentadal sets (n = 5) generate Kh complexes which are also closed.

having established interval vectors as opposed to 'pitch-class constituency' as the core element used to distinguish genus progenitors, Forte's motivation for building the foundations of the system from the trichord are simple:

> ... it seems most fruitful to take the trichord as the set of least cardinal number which, unlike the dyad, offers more than one representative of an interval class and which therefore is capable of being compared meaningfully with others of its kind. [45]

The trichords' interval vectors and their interaction with the six dyads (viewed as representing the six interval classes of the interval vectors) are investigated for ' ic singularity' and ' ic congruence', generating twelve distinct 'progenitors' or 'progenitor combinations' respectively.

4.3.2 Forte's model: Part 2 – the interpretation of generic relations

The second part of the theory is the point where the real deviation from the set complex emerges. In studying the constituents of the twelve genera themselves it becomes apparent that there is considerable overlap between these 'refined set complexes',[46] and so Forte shifts the emphasis from 'complex membership itself' to 'tallies of membership' of the genera. If, as Part 1 argues, these twelve might be called sufficient poles in that they offer depictions of, or references to, certain external constructs (dia, atonal, etc.),[47] then the important measure is the number of instances of the musical segments in each genus (represented by their abstraction, the pc-set).

Part 2 therefore refines the theory by offering a systematic methodology which allows a given segmentation to be classified in terms of its genera, the basis for which are the 'Rules for the Interpretation of Generic Relations'.[48] It moves genera in the manner described by Ayrey, from the 'democracy' of the set complex into a 'system of differences without positive terms' whereby segmentations are portrayed as a set of differences between the twelve defined genera.[49]

The main mechanism Forte uses to do this is through the Squo calculation, which presents the number of instances of members of the genus as a proportion of the cardinality of the genus and

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45. Forte 1988a: 188.
46. The subset is defined by Forte's GF Rule 2. See Forte 1988a: 192.
47. Note that the progenitor tri-chords are selected on the basis of a) uniqueness of ic representation over two ics (which generates the single-progenitor genera) or b) a set of associations based upon an ic congruence (whereby the sets share 'two non-null interval classes not necessarily in the same number'). The formation of genera is defined in Forte 1988a: 188-190.
48. Forte 1988a: 234-235.
49. See Ayrey 1998: 163-164.

of the sets in a given segmentation (sometimes referred to as the 'matrix'). It is useful to emphasise that, on its own, it does not take into account any other genus, and in this sense is quite properly a property of the *relationship* between a particular genus and the sets in a given segmentation. While in an important sense it 'neutralises' some of the bias which might pertain to the context of a given genus, it has been well demonstrated that it does not provide a sufficiently 'absolute model';[50] hence a degree of 'competence' based on the experience of using genera in the analytical situation is required in order to draw conclusions.[51]

It is the examination of the Squos of all the genera that makes it possible that a matrix (a graph in which the x-axis represents the genera, and the y-axis represents the list of sets, and the matrix itself comprises the hits of each pc-set against each genus) be 'reduced' on the basis of the above-mentioned rules, and a final model of the underlying harmonic species be revealed.

4.3.3 The generic classification of pc-sets

An illustration of the usefulness of Forte's theory can be found in Forte's initial discussions of his genera and their interaction with the pc-sets of known constructs. Specifically, he presents the full and reduced matrix of the Kh complex of 4-5,[52] and in the context of his discussion of the octatonic scale, he also produces a matrix of the Kh complex of that construct.[53] These matrices engage the issue of 'what kind of set is this?' in a way that is not addressed by simply examining in which genera a particular pc-set enjoys membership, and they are particularly helpful for use with five or six-member sets, which in all likelihood would belong to several genera. The profiles generated by reducing the matrix allow an association between any given pc-set and the external notions (dia-tonal, chroma, whole-tone etc.) to which Forte's genera relate.

Forte's examples focus on the Kh complex of a given set. In view of the importance attached to the embedding relation in the current study, it could be argued that in identifying the 'most appropriate profile of a given set', it is the K* complex which offers the most logical classification. This is because this complex comprises all the supersets and sub-sets of a given set without requiring a consideration of whether their complements are also sub/supersets of the given set.

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50. See Kennett 1998b.
51. 'Competence' is Kennett's term (Kennett 1998b), and the issues involved will be discussed below.
52. See Forte 1988a: 234-237.
53. See Forte 1991: 130-133.

Moreover, one could argue that if the focus of the inquiry is the harmonic species of a given set then the superset is indicative of only a 'potentiality' of that set which is not relevant to its harmonic species: that is, the set of supersets would not add any data about the set itself because they are not actualised in the segment which the pc-set represents. Supersets of the set could therefore be omitted from the group of input sets. After all, if a musical segment is viewed as an unordered pc-set, then there seems to be a categoric distinction between all the unordered subsets of that segment which are in fact actualised (even though the texture may not present them as segmented in any significant way),[54] and the supersets which are not actualised.

If supersets are included in the K* complex, then the genera table for a given set's complement's K* complex would be the same as that of the set itself. This is best illustrated with an example. 4-8 is part of the K* (and not the Kh) complex of 5-Z12. 8-8, on the other hand, is part of the K* complex of 5-Z12's complement, 7-Z12. 4-8 and 8-8 have the same genera 'hit-list' and will therefore give the same inflection to the aggregate of hits. In view of the objective in using the K* complex to avoid the problems inherent in complementation exemplified in the Kh complex, it is consistent with this approach to prefer the subsets only, rendering the generic profiles of complementary sets distinctive.[55]

Such considerations suggest that while Forte's model, in particular 'Part 2', offers a dynamic and new approach to the application of pc-set theory in analysis, the theory as presented is inclined to be restrictive, not allowing analysts to pursue a modification of the theory that might be more suited to a particular analytical strategy.

4.4 Parks's model of pc-set genera

If Forte's theory of genera could be explained as a theory of two parts, then that of Parks could be classified as a theory of two formulations. The key differences between Parks 1989 and Parks

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54. Forte himself provides a controversial example of this, in connection with another point. In his reference to Schoenberg's *Der Wanderer* (see Forte 1978a: 138-139), he argues that four instances of both 6-Z44 and 6-Z19 can be gleaned from the texture in bars 9-3. While this is true, the fact that they are not segmented as such by any particular feature, suggests it may be more prudent to claim that the texture reveals 9-3, and one of the properties of 9-3 is the fact 6-Z44 and 6-Z19 are maximally embedded within it, over all the 9-member sets.

55. The *Set Manager* software (discussed below) can be used in this way to generate a profile for any given set, by enabling the user to undertake a generic profiling analysis of any complex (K, K*, or Kh) of a given set, by looking at the complete complex or just the sub (or super) sets. This can be accomplished by using the 'Set Explorer' window, the user of which is described in Appendix B.

1998a have already been alluded to above;[56] others at a more detailed level are noted by Parks himself.[57] The following discussion will note, where appropriate, the differences as 'Form A', and 'Form B', referring to the formulations of respectively Parks 1989 and Parks 1998a. Parks's approach is investigated here in order to determine if and how it can be placed alongside that of Forte in the context of a given segmentation. In general, the focus is on aspects of the theory which are common, so that they might be generalised to provide a more inclusive model.

The basis of both instances of Parks's theory is the embedding relation.[58] This contrasts with Forte's basis in the Kh relation (Rule 1) invoking the set complex and, given the proposed Rule 3 discussed below, guarantees Forte's genera a form of symmetry in terms of the number of sets for each cardinality group across inverse-related cardinalities. Parks's genera, by contrast, are significantly larger in terms of number of members than those of Forte, and, within each genus, the distribution of member counts by cardinality is asymmetrical – indeed, in the 'simple genera' (Form B) it 'proliferates' in proportion to the distance of the cardinality of the group from that of the progenitor(s).

This, of course, is tempered by the number of sets available to the cardinality, but the point can be illustrated if we look at the percentage of the total sets in each cardinality (shown in Table 4.1) where progenitors of the 'simple genera' are the trichords. It is useful to note that one of the important consequences of this difference (embedding as opposed to the Kh complex) is that sets of the inverse cardinality to the progenitor set will be part of the genus.

A second point of common reference between both forms of Parks and Forte is Parks's notion of the 'characteristic members' of a genus. In Form 1, in which simple (single cynosural sets) genera predominate, this gives prominence to a group of sets of distinct cardinality, each of which contain, or are contained by, each other. It has an obvious practical manifestation in that a motif or theme that unfolds a progenitor can be modelled as an imbricative segmentation that reveals a chain of embedding relations. For example, a set of cardinality three would be contained within a set of cardinality four which would in turn be contained within a five-member set (and so on until the cynosural set, embracing the entire theme or motif, had been 'reached').

56. The key difference is the difference in 'level of generalisation', see p. 83. A significant problem is the 'inconspicuous' nature (Parks's description – see Parks 1998a: 207) of the genera definitions given in the earlier formulation.

57. See Parks 1998a: 209.

58. Discussed above (see p. 78).

Progenitors	Cardinalities of the member sets as a percentage of all sets in the cardinality						
	3	4	5	6	7	8	9
3-1	8.3%	17.2%	42.1%	64.0%	89.5%	96.6%	100.0%
3-2	8.3%	31.0%	65.8%	88.0%	100.0%	100.0%	100.0%
3-3	8.3%	31.0%	65.8%	86.0%	97.4%	100.0%	100.0%
3-4	8.3%	31.0%	65.8%	84.0%	97.4%	96.6%	100.0%
3-5	8.3%	31.0%	63.2%	88.0%	100.0%	100.0%	100.0%
3-6	8.3%	17.2%	44.7%	64.0%	89.5%	93.1%	100.0%
3-7	8.3%	31.0%	65.8%	88.0%	100.0%	100.0%	100.0%
3-8	8.3%	31.0%	65.8%	90.0%	100.0%	100.0%	100.0%
3-9	8.3%	17.2%	42.1%	64.0%	89.5%	96.6%	100.0%
3-10	8.3%	17.2%	44.7%	68.0%	100.0%	100.0%	100.0%
3-11	8.3%	31.0%	65.8%	86.0%	97.4%	100.0%	100.0%
3-12	8.3%	6.9%	21.1%	34.0%	60.5%	75.9%	100.0%

Table 4.1: Matrix showing the distribution of member sets over 'all sets' by cardinality

Curiously, this Form 1 construct echoes Forte's Rule 2 of the 'Rules for the Formation of Genera', which Forte justifies by noting the necessity for sets of higher cardinality to stay in touch with the progenitor. In as much as Forte's Rule 2 is invoked on hexads in terms of pentads and tetrads, when we know that already the pentads must have a tetrad (obviously as well as the progenitor), it is clear that it guarantees that all sets in the genus are members of a potential chain of embedding relations that leads directly back to the progenitor. Or to put it in Parks's terms, Forte's genera are constructed of characteristic sets only, but rather than limiting the concept to the articulations of such a chain in the music, Forte's genera encompass *all possible* characteristic sets. Forte's Rule 2 is a theoretical construct, while in Parks these theoretical chains are typically instantiated in the music itself, in as much as they represent a melodic line.

As in Forte, Parks's Form 1 allows that cynosural sets (or progenitors) number more than one, but Parks allows the union operation in terms of the progenitors generating a genus (specifically in the '8-17/18/19-complex' genus) whereas Forte uses intersection only. Moreover, for Parks the notion of cynosural set is not necessary: the chromatic genus of Parks's Form 1 genera does not have a cynosural set or sets, as its definition is based upon the content of the interval vector.[59] This is in stark contrast to Forte's concept in which genera are defined by progenitor inclusion, and the decisions as to which sets may function as progenitors are supported by a theoretical rigour which, on the one hand, ensures that the union of all twelve genera spans the complete pc-

59. See Parks 1989: 74. A further description of this can be found below (p. 99).

set gamut,[60] while on the other, ascertains that there is a reasonable range of 'differentials' between genera themselves.

One further property of Parks's genera (also based on the notion of interval vector) is that they include, as 'secondary' members,[61] all genus members' Z-related counterparts. In a co-incidental deference to the notion of the set complex, this means the inclusion of the complementary sets of the hexads, as they are of course Z-related to their complements. 'Z-relatedness' forms no part of Forte's 'rules for genus formation'.

It is possible to observe in Form 2 of Parks a theoretical structure that has parallels to that of Forte, in that the eight definitions for genus formation (which reveal alterations of some of the detail of genera formation) are followed by a discussion of how the genera might be interpreted in the context of a segmentation. He admits that the number of genera the definitions could engender is exceedingly high, and so the discussion on 'interpretation' is based around pragmatic preference rules for identifying the 'best genera' for a given segmentation. However, the balancing between genera and matrix sizes required when examining the relationship between genus and segmentation (facilitated by the Squo) which one finds in Forte is not addressed in Parks 1989, and avoided in Parks 1998a by his emphasis on the discovery of a (presumably singular) 'perfect genus', rendering the balancing unnecessary.

Although Parks attempts to refocus the enterprise on the presentation of the 'properties of the model' which such a genus might have, and there is some support for a less rigorous model than Forte's in the light of some of the issues raised by the process of analysis itself,[62] there is – as discussed above – little distinction between the purpose of Parks's Form B and the notion of 'nexus-sets' which define the set complex.

4.4.1 Kennett's generalisation of the Squo

One theorist has, nevertheless, addressed the problem of applying Forte's technique for the 'interpretation of genera' to genera formulated by means other than Forte's rules. In fact the

60. The exception is 3-6 and 9-6. 3-6 is excluded as a potential progenitor because the sets it would generate through Rules 1 and 2 are wholly contained with the set of sets generated by 3-8. A case could be made, therefore, for including 3-6 (and by implication 9-6) in that genus because they stand outside Forte's system as it stands.

61. In Form 1 these are called 'secondary members' (see, for example, Parks 1989: 59), whereas in Form 2 they become 'ancillary members' (see Parks 1998a: 207).

62. See for example Ayrey 1998: 175.

genera (Kd-complexes) used by Kennett have been formed in a similar manner to those of Parks.[63] Specifically, he has demonstrated that it is possible to apply the formula for calculating Squos to genera outside the twelve developed and defined by Forte,[64] and with minor modification to a set of genera where the progenitors or progenitor-groups have different cardinalities from each other. This modification enables, for example, a Squo to be calculated for a genus based on 4-19, and a second to be calculated on a genus based on, say, 3-8 in which the comparison would take into account the fact that the hit list for the pc-sets of the segmentation would be drawn from different matrix sizes (dependent on how many sets of cardinality three and four respectively the segmentation included).[65]

In addressing the issues of how to reduce the full matrix Kennett also experiments with a number of permutations of the 'rules for interpretation',[66] with particular focus on the issue of whether Rule 2 of the 'Rules for the Interpretation of Generic Relations' is necessary (discussed below).[67] In general his conclusions (based on case studies) confirm that the principles underpinning the rules are applicable to the more general model:

> The 'balanced matrix' ... seems to reflect the listeners' intuition about the first movement of the Sonata the most accurately of the three matrices offered, at least in the generative hegemony of 6-Z29.[68]

Kennett's 'balanced model' takes into account relatively little modification of the rules, and its 'balanced' character derives from the integrity of the formation of the genus (in this case the Kd-complex) in that it includes 'all sets that occur in the work as separate entries whatever their cardinality'.

In general, Kennett's work effectively takes what has been called here 'Part 2' of Forte's theory, and, having made modifications, applies it to the more general model (as broadly defined by Parks). Indeed, Kennett uses the term 'complex' (as in 'Kd-*complex*') to describe his inclusion-

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63. See Kennett 1995: Kennett's Kd-complexes differ from Parks 1989 because they do not include the Z- related sets, which Parks includes as secondary members (Parks 1989:59). They become 'ancillary' members in Parks 1998 (see 207 and 209).
64. See Kennett 1995: 178 (explained in detail 165-175), 1998a: 151.
65. This is considered in greater detail below. See p. 107.
66. See Kennett 1998a: 153.
67. See below, p. 105.
68. Kennett 1998a: 154. The 'Sonata' referred to here is the *Piano Sonata* by Frank Bridge.

related groups of sets, and in his analyses the groups of 'Kd complexes' are primarily used in order to assess the Squos of sets (as opposed to genera), the significance of which has already been identified by a set complex graph. In this sense Kennett's terminology concurs with the argument presented above that the term 'genera' suggests allusion to a construct external to set theory, whereas the set complex identifies relationships internal to pc-set theory.

4.5 *Generalising the theories of pc-set genera*

Despite the concerns expressed in respect of Parks's 'generalised' proposal, the idea of removing the constraints which restrict the domain of the genera to the twelve proposed by Forte and replacing them with genera which might seem more suited to the repertoire in hand, appears particularly attractive. In terms of the current study, the objective in surveying and comparing the theories of both Forte and Parks has been to propose a means of combining and presenting their techniques at a more general level through computer software. In order to achieve this, the various rules must be reformulated as algorithms which address a more generalised level than they do in their original states. In broad terms, the task of the software may be divided into two practical phases, roughly corresponding to the structure of Forte's theory: (1) the task of genera creation; and (2) the task of interpreting the genera in the context of a given segmentation.

In terms of genera, it is proposed that the 'general requirements' of the software are as follows:

> (1) The need to model and save genera based on a) the Fortean set complexes - K, K* and Kh; b) Forte's Rules; c) Parks's rules including the genera generated by the interval vector; d) various set operations (union, intersection, 'exclusive or' etc); and e) closure of the set of underlying relations.
>
> (2) The need to interpret genera of various origins and cardinalities in the light of a given segmentation by using a generalised Squo, a generalised Difquo, and generalised reduction techniques.

It will be seen that Kennett's generalisation of the Squo goes some way to realising the requirements in (2), and his work will form the basis of the solution offered here. The following sections in the current chapter detail the theoretical issues involved in realising this level of generalisation, while the next chapter will address the ways in which these requirements can be realised in software. Further details of the specific design and development of the *Set Manager* software used in the current study (describing software architecture) can be found in Appendix C. The remainder of this chapter will comprise three sections. The first (4.5.1) deals with issues in the existing Fortean model. The second and third sections (4.5.2 and 4.5.3) will deal with the specific requirements of a generalised model in view of the models for genera that have been provided, dealing respectively with the rules for genera formation, and the processes involved in the interpretation of genera.

4.5.1 Issues raised by the generalisation of the existing Fortean model

In order to outline the generalised model, and in view of the rigour of Forte's model, it is necessary to address a number of issues raised by that model, but which, to the current author's knowledge, have not been addressed elsewhere. This process of 'tidying up' the theory is necessitated by the process of building algorithms which not only model what Forte has done, but extend that model to the more general case. There are three such issues.

4.5.1.1 The rules of genus formation

The first issue addresses the sufficiency of Forte's rules for genus formation.[69] Once a 'progenitor' (or set of progenitors) has been established, Forte proposes just two rules for the creation of a genus:

> 1) Each member of the genus as well as its complement must be a superset of (must contain) the progenitor(s); and
>
> 2) In addition to satisfying Rule 1, each pentachord must contain at least one of the tetrachords in the genus, and each hexachord must contain at least one of the pentachords and at least one of the tetrachords in the genus.[70]

It is useful to emphasise that when two trichordal sets have been identified as the 'combined' progenitors (as is the case in genera 4 to 12), Rule 1 here implies that it is the *intersection* of the two sets' Kh complexes that forms the genus. This moreover alleviates Rule 2 of having to determine whether it addresses the union or intersection of the two progenitors' Kh complexes, an issue which will be discussed more fully below.

However, an examination of the lists of genus members which Forte has provided shows that these rules do not appear to be sufficient.[71] For example, in respect of Genus 5, 6-Z17 and its complement (6-Z43), both embed 3-1 and 3-2 (fulfilling Rule 1), and set 6-Z17 contains pentadal

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69. This issue has arisen as a result of the necessity of formulating the algorithms detailed in the next chapter.

70. Forte 1988a: 192.

71. See Forte 1988a: 265. See also Ayrey 1998: 176. Footnote 4 shows the identified errata. The assumption here is that these are the only errata.

set 5-13 and tetradal set 4-2 (fulfilling Rule 2). But 6-Z17 is not deemed to be part of this genus.[72] The following list shows the other hexadal sets which are omitted from the genera sets and which the rules as stated should allow.

Genus	Omitted Hexad
G5	6-Z17
G6	6-Z29
G7	6-Z17, 6-Z28
G9	6-Z12

Table 4.2: Omitted hexads

Characteristically these sets are non-symmetrical hexads whose (hexadal) complement is excluded from the genus on the basis of Rule 2. Therefore, if Rule 2 did not exist, there would be no problem - Rule 1 on its own (because it invokes the Kh complex) would imply the inclusion of complements. In view of this, the following third rule is proposed:

3) All sets in the genus entertain membership of the genus if and only if their complement exists in the genus.

This rule not only ensures the exclusion of the hexads cited above from their respective proposed genera, it also formalises the implied exclusion of heptads and octads whose complements have been eliminated by Rule 2.[73] It will be seen that this rule is particularly necessary in order to create a sufficient algorithm in the context of the *Set Manager* software. Moreover, in not editing either of the two rules Forte provides, it preserves a degree of elegance in the sense that it assigns a single functional assignment to each rule.

4.5.1.2 Restricting the genera to cardinalities 3-6

The symmetry of Forte's genera system (noted above in respect of the discussion of the 'rules of genus formation') is evident from his writings. However, in the calculation of the Squos for a genus over a given pc-set matrix for a work, he uses the cardinality of this 'half-set', rather than

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72. See Forte 1988a: 265.

73. The rule proposed here is implied in much of what Forte writes. The comment on Rule 1 (which immediately follows) states '[Rule 1] also preserves the symmetry of the genus, since it guarantees that any set is reflected by its complement in the same genus.' The current author's reading of Rule 1 suggests that it offers no such guarantee. The discussion goes on to provide tables and other illustrations in which sets of cardinality 3 to 6 only are shown. This is further referred to by the paragraph entitled 'Symmetry of the Genus' (Forte 1988a: 194).

the cardinality of the full set of genus members. Because of the symmetry of the genera,[74] one might have expected this to be unproblematic, as one could merely halve the existing Squos to calculate the 'real' Squos. Unfortunately, however, because the Fortean genera include the self-complementary hexadal sets (in varying quantities, dependent on the genus), the resultant Squos are not simply double of what they would be had Forte used the cardinality of the full genus. They are slightly under double, dependent on how many self-complementary (non Z-related) hexads happened to be members of the genus. So there is no single fraction that could be applied to Forte's half-genus cardinality-based Squos to render them correct (in the sense suggested here). Moreover, if one were to apply the 'correct' Squo formula to existing published analyses one might get different orderings of genera to those gained by applying Forte's original Squo formula. The reductions would go on to use these different orderings to generate quite different results. In general it could be argued that Forte's original Squo-formula erroneously under-privileged genera which had greater numbers of self complementary hexadal sets, because of the over-statement of their cardinality (which is one of the denominators in the formula).

One could argue, nevertheless, in Forte's original document the analyses show segmentations which make no use of sets of which the cardinality is greater than 6,[75] and so Forte's analysis are consistent with the theory as presented, because they engage only with sets of cardinality 3-6. The theory implies, however, that segmentations with pc-sets of seven to nine members may be used in genera analysis, as such sets are confirmed as members of the genera.

Indeed, the analyses by Ayrey and Kennett have redressed the balance, including as needed heptads, octads and nonads, assigning them to the genera of their complements (in terms of the genera listings in Forte's original article) by using Squos calculated on the basis of the 'half-genus' genus sizes. For the sake of compatibility with analytical accounts that have already been published, the *Set Manager* software optionally supports Forte's original Squo calculations based on the 'quasi-half-genera', but for the purpose of the current study in which it is necessary to establish primitives that form the foundations for generalised genera, it is necessary to make use of the cardinality figures for the full genus in calculating Squo scores. The analyses in this study will use these Squo-calculation procedures, and in as much as the results are to be compared with

74. See Forte 1988a: 194.

75. Moreover, Forte 1991 discusses the octatonic in terms of 'heptads', but his generic tables (See Forte 1991: 129-132, Tables 2, 3, and 4) do not include heptads.

the Fortean genera, the Fortean genera in the current study will also be calculated using cardinality figures for the full genera.

4.5.1.3 *The update of Difquo charts in view of identified errata.*

A number of errata in respect of genus membership have been identified which update Forte's original study.[76] These sets increase the sizes of genera 2, 3 and 4, which of course may mean certain results contained in the early studies are slightly skewed. However, the Difquos were never 'republished', and so Appendix A in Vol. 2 shows the corrected versions of Forte's Tables 23 and 24. These have been derived from *Set Manager*, which calculates Difquos 'on the fly'.

In general, the discrepancies between these tables and the originals are slight, and they are included in this study mainly for the sake of completeness. G1 and G2 are pushed even closer together, and although this sole negative value might appear odd, it is not entirely unexpected as Forte description of the Difquo reveals:

> The hypothetical range of decimal values of Difquo is from -1 (representing minimum difference or identity) to +1 (maximum difference - no members in common). [77]

Other differences do not change any of Forte's conclusions significantly, and it can be confirmed that the alignments of genera to 'supra-genera' do not need to be readdressed.

4.5.2 Collating and generalising the rules for genus formation

The resolution of these issues in terms of Forte's specific application makes it possible to address the task of collecting the various techniques identified thus far by which genera can be formed. Collectively these techniques will represent a generalised view of genera formation or modelling, which in the context of a software application could easily be deployed.

4.5.2.1 *The general operations*

In view of Forte's Rule 1 and the challenge presented by Parks's less restricted approach to genus formation, it seems appropriate to propose that genera be created on the basis of Kh, K* (or Kennett's notion 'Kd') or even K complexes of a given set. This creates a degree of flexibility that

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76. These errata were noted by Ayrey (Ayrey 1998: 176), although it is not clear when (and by whom) they were originally discovered. They are the addition of 5-15 to Genus 2, 5-32 and 6-33 to Genus 3 and 6-16 to Genus 4. This changes the sizes of these respective genera, and therefore all calculations of Squos for these genera. The program and sets in the current study reflect the correct version, as the genera were initially generated by algorithm.

77. Forte 1988a: 222.

allows, as Kennett has demonstrated, the various hegemonies of sets (which may have been deemed to be significant by other means) to be compared, as well as the 'monitoring' of those sets, of which certain properties are already known (such as 7-35 – the diatonic, 6-35 – the whole-tone, 8-28 – the octatonic, 6-20 – the hexatonic, and so on), to be assessed.

Moreover, as Forte's notion of 'progenitor' and Parks's notion of 'cynosural sets' allow for the possibility of genera built on more than one central set, the software needs to be capable of allowing genera to be built on more than one central set. While this does not create problems in genera interpretation (Part 2 of this model),[78] it immediately raises a number of other requirements which will, in due course, raise separate issues. At the basis of this is the decision as to whether the genus is to be built on the union (as used by Parks) or the intersection (as used by Forte,[79] but also by Parks as a means of prioritising membership within the genera) of the progenitors. Both options will obviously need to be supported by any generalised form of modelling genera. The 'exclusive or' function used by Parks to identify his 'secondary members' will also be required.[80]

It is also clear that there is a case for being able to build sets from properties of a pc-set other than the set itself, as exemplified by the chromatic genus from Parks 1989.[81] Parks's chromatic genus can be defined in terms of the relationship between the interval vector and the cardinality of the set, where the genus comprises all sets in which the chromatic member of the interval vector (the first numeral of the interval vector) is greater than or equal to the cardinality of the set minus 2. To be sure, this does not address the way in which various categories of sets within the genus (ancillary, secondary etc.) are formed, but it offers an inclusive formula for building the genus. It seems that genera could be formed by undertaking calculations on the individual entries in the interval vectors, and the generalised model will need to offer provision to include this technique.

In both his Form 1 and Form 2, Parks proposes an internal structure to his genera whereby some members are primary, some are secondary, etc. It is not proposed that provision for an internal

78. This is because, as will be shown, Part 2 will need to be sufficiently flexible to regard the genera as a list of sets (which might not be related at all).

79. Not discussed directly but implied in Rule 1 of the rules for genus formation (Forte 1988a: 192).

80. See Parks 1998a: 207. 'Exclusive or' is sometimes referred to as 'Symmetrical Difference' as in Forte 1988a in respect of the Difquo.

81. Parks 1989: 74.

classification system within the genera be included in the current generalised model, as it is not clear how such classifications could relate to the 'Interpretation of Generic Relations'.[82]

In addition to the primary 'genus building' operations, it is clear that a number of 'refinement operations' are also necessary. For example, the aforementioned Rule 3, which requires a set's complement to be present within the genus, could be applied to an existing list, with the resultant listing removing sets that do not conform to this rule. A refining operation based on Parks's inclusion of 'Z-related' sets could, by contrast, add sets to the existing model. The common ground between Forte's Rule 2 and Parks's notion of characteristic sets forms another obvious candidate for these 'refining' functions, but as its generalisation requires a degree of supporting theory it will be discussed more fully below.

It is proposed that for the sake of completeness the various similarity relations are also made available, as well as a function which adds the complementary sets to a genus. It is also conceivable that individuals will wish to add sets to a genus for reasons that cannot easily be modelled (let alone be anticipated in the software development process), so the functionality to add and to delete single pc-sets is required. The interface by which all this functionality can be presented to an end-user, whilst trying to avoid confusion, will be detailed in the next chapter.

4.5.2.2 The generalisation of Forte's Rule 2.

The common ground between Forte's Rule 2 and Parks's notion of the 'characteristic sets' has been noted. It was clear from that discussion that the rule is unambiguous and an algorithm can be formed which, after the application of Rule 1, can generate the set of genus members for which the rule is true.[83] It is useful to note further that in the case of the four single-progenitor genera, Forte's Rule 2 makes no refinement to the group of pc-sets generated by Rule 1 (representing the Kh complex surrounding the respective three-member sets) – the number of sets in the Kh complexes of 3-5, 3-8, 3-10 and 3-12 is the same as the number of sets in Genera 1, 2, 3 and 4 respectively.

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82. In the software application, the functionality can to some degree be emulated by saving the whole genus and the various components of the genus as separate genera. The results of the generalised Squo can be thus compared.

83. See p. 95 for the discussion and quotation of the rule.

If Rule 1 was modified to address the K* complex, then the sense of Rule 2 could be modified to include the larger cardinalities, and the phrase could be expanded to say 'heptads will include at least one hexad, pentad and tetrad, and so on.'

It is also possible that the progenitor(s) might have a cardinality which is not 3, in which case the general 'spirit' of the rule can be sustained by allowing the rule to take on two parts, one to deal with the elements in the set which have a cardinality greater than the progenitor(s), and one to deal with the elements in the set which have a cardinality less than the progenitors(s). A sufficient rule might be written thus:

> Given the cardinality of the progenitor, n, and the cardinality of any given pc-set in the genus 'a', if a > n then for each given pc-set there must be at least one member pc-set embedded within it, of each of the cardinalities a-1,... n. If a< n then for each given pc-set, there must be at least one member set embedded within it of each of the cardinalities a+1, ... n.

This rule offers a limited generalisation of Rule 2 in terms of Forte's genera. It assumes (1) that a progenitor (or set of progenitors) exists, (2) that in the case of more than one progenitor they would have to be of the same cardinality, (3) that some form of Rule 1 is invoked on the progenitor(s) (K* or Kh), and (4) in the case of more than one progenitor, that, it is the intersection of the complex of the progenitors which forms the basis for its application (recall the discussion of Rule 1 above, which was deemed to imply intersection). If, for example, in the case of a 'multi-progenitor' genus (cardinality 3), the four-member sets did not have an embedding connection with *all* of the progenitors (as would be guaranteed in the case of intersection), then the rule would begin to lose its effectiveness in satisfying the requirement, 'that each component of a genus remain in contact, as it were, with the progenitor'.[84]

Nevertheless, it is the objective of the current study to attempt to find a form of Rule 2 which would effect the restriction required by Forte's genera, yet be sufficiently general to be applicable to a group of sets in which there was no progenitor, as would be required by Parks's 'characteristic sets'. This would mean that there would not necessarily be an underlying 'embedding' connection. Such a formulation would be impervious to whether intersection or union (or some other operation) underpinned the way in which the group had been assembled.

It is useful to observe at this stage that Forte's Rule 2, as well as the generalised form proposed above, both have a 'viewpoint' (effectively the starting point) from which the rule is applied,

84. Forte 1988a: 192.

namely the progenitor(s) itself/themselves. This viewpoint not only defines at which cardinality the division of the rule into 'two halves' takes place, but which 'set' or 'sets' the rule tests for embedding when 'a' is one step distant from 'n'. As can be seen by inspection of the algorithm detailed in the next chapter, the computer program requires a starting point from which it must begin its operation.[85] This is supported by consideration of the notion of closure within the group of pc-sets. If it were known that the closure property holds within the group, then (a) the application of Rule 2 would return the same group of sets as the input group, and (b) it would not matter on which pc-set the algorithm would begin (except, of course, that the embedding relation would not hold between sets of the same cardinality). However, in the general case, closure does not necessarily hold, which means certain pc-sets will not connect to others through embedding, and there is a higher probability that such non-connections will be between pc-sets of adjacent cardinalities. Different starting points (or viewpoints) will therefore render different results. If the rule were to be applied from the viewpoint of any pc-set in the prospective Fortean genus other than a progenitor, then a different number of sets would be produced. In all cases this would be less than (or at the most 'equal to') the number of sets produced if the rule is applied from the viewpoint of the progenitor(s). This is because (perhaps obviously) no other set is better placed in terms of 'embedding' than the set which has generated the group (in the sense of the relationship between it and its Kh complex).

Therefore, returning to the objective of finding a form of Rule 2 which could be applied to groups of sets which have no progenitors, as well as groups of sets which do have Fortean progenitors, it appears that the notion of 'viewpoint' is useful. If the generalised rule as described above were to be run from the viewpoints of each of the members of the group, then the rule running in 'default mode' would return the viewpoint which would generate the largest number of sets. In Fortean genera constrained by intersections of a Kh or K* complex, this would be the viewpoint of any of the progenitors as they would all generate the same group of pc-sets. In the case of there being no progenitors (or complexes of progenitors linked by union or any other operation), then there may be more than one viewpoint with the maximum number of returned sets, in which case one of the viewpoints would have to be selected.

The generalised Rule 2 could thus take the form:

Rule 2 generates a 'subset genus' Y of genus X in respect of 'central pc-set' p in which:

85. See Chapter 5: 117.

> Given the cardinality of the 'central pc-set', n, and the cardinality of any given pc-set in the genus 'a', if a > n then for each given pc-set there must be at least one member pc-set embedded within it, in each of the cardinalities a-1, ... n. If a< n then for each given pc-set there must be at least one member set embedded within it, in each of the cardinalities a+1, ... n.

In this form Rule 2 provides a means of determining all chains of 'characteristic sets' in Parks's Form B, in respect of each set in the context of a genus.

It is clear that the generalised Rule 2 will need the assistance of a computer to calculate all the viewpoints and support is provided through *Set Manager.* Further discussion of the issues surrounding Rule 2 will be described in the context of the algorithm presented below.

4.5.3 Generalising the profiling of genera

The 'key components' of Part 2 of Forte's theory are (1) the structure of the Squo, (2) the Difquo and (3) the rules for the interpretation of genera relations that underpin the reduced matrix. The process of generalising these components, can be largely modelled on the study undertaken by Kennett (briefly summarised above) in his generalisation of Forte's Squo for the 'Kd complexes', and a large proportion of what follows will make reference to that study. However, the main focus of the discussion here is to answer the question: to what degree are these key components affected by the general case genera discussed and defined in Section 4.5.2?

As in Section 4.5.2, it is necessary for the current section to address the Forte-specific formulations of the Squo and, importantly, his rules for its interpretation, in order to propose solutions to some of the issues, while taking into account the application of these rules to the generalised genera.

4.5.3.1 The 'sufficiency' of the rules for the interpretation of genera

In his survey of Forte's 'rules for the interpretation of genera' Kennett identifies two important issues: the sufficiency and redundancy of the rules. The second, which relates to the redundancy of Rule 2,[86] will be discussed more fully in the next section, in which the lack of clarity of the rules, and the problems which that fact raises in the process of creating algorithms, is addressed.[87]

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86. In order to avoided confusion with the previously discussed Rule 2 for the formation of genera, the current 'Rule 2' will be referred to as *RI Rule 2*, while the genus formation Rule 2 will be hereafter referred to as *GF Rule 2*.

87. See Kennett 1995: 167 and 1998a: 153. Kennett is assessing the rules with a view to their robustness in terms of his notion of the 'Kd-complex', which is described more fully below. The redundancy of Rule 2 will be discussed fully below (p. 105).

The first issue, which forms the basis for the content of the current section, relates to the sufficiency of the rules: that is, whether the five rules offer a sufficient model for the interpretation of the genera. During the course of the presentation of his analyses, it is clear that Kennett has found analytical situations in which the rules cannot determine which genus takes priority. This is not immediately apparent in the theoretical formulation.[88] The example Forte uses to illustrate the application of rules[89] fails to make use of a set of Squos in which there are equal values, and so the insufficiency issue referred to by Kennett is not addressed. Although Kennett does not propose any supplementary rules which might engender an algorithmic solution, he offers a pragmatic assessment of the degree of the problem by examining the Difquo of the two. Other writers have not proposed any further solutions to this issue.

The objective of reducing the genera table is the assignment of each pc-set to a particular genus in the light of the overall context (the abstract notion 'generic profile') of the section under consideration. Rule 4 already proposes that a genus containing singleton pc-sets should be accorded some form of preferential treatment, if Rule 1 has not already been invoked. This accords with the overall objective of 'profiling' genera because, if a genus is represented by a pc-set which can be assigned to just one genus in the actual music, we might say that it is more strongly represented than a genus which includes no such set. Kennett also proposes that if a genus had several singleton sets then that genus should be preferred over one which had, for example, a single singleton set, proposing further means by which one genus can be preferred over another in respect of the pc-set. [90]

Kennett's proposal makes good sense, and is adopted within the reduction algorithm employed by the current study but, as he notes, this does not always (indeed does not *often*) solve the issue of breaking the 'deadlock', as both (or all) 'deadlocked' genera may still have the same number of

88. Forte's rules can be found in Forte 1988a: 234. Kennett finds the rules insufficient in his analysis of the second movement of the third String Quartet of Frank Bridge, in that the Squos within the first pass matrix can sometimes have the same score. This is because a number of genera have the same number of sets, which forms one of the denominators in the formula. In itself this is not a problem until one wishes to reduce the matrix. If the 'hits' for a given set include two (or more) of the genera with the same score, and this score is the highest score for the given set, assuming none of these genera have a singleton member (or that they all do), then the rules do not provide a means of determining to which genus the set belongs in the 'reduced matrix'. See Kennett 1995: 194-196.

89. This table (Forte 1988a: 236, Table 28), which shows how the rules have been applied, has been reproduced in Appendix D, Vol. 2.

90 See Kennett 1995: 195-196.

singletons. The solution proposed here, based upon the principle of 'strength of representation' exemplified by the 'singleton' rule (Rule 4), is that the genus which gains the 'greatest benefits' in terms of resultant Squo (i.e. the Squo formed by assessing Squos of the genera in the reduced matrix) should be the preferred genus. This calculation is assisted by the deployment of a computer in that it can relatively quickly calculate the end result before assigning preferences. The algorithm is further discussed in the context of the computer program in the next chapter.

It is conceivable that two or more genera will remain 'deadlocked' in respect of a pc-set even after their resultant Squos are examined, in which case it is proposed that the multiple-assignment be noted as such on the actual matrix. If the generic profile is significantly affected, then the commentary should take the ambiguity into account.

4.5.3.2 A proposal for the revision of the rules for interpretation of generic relations

Equally significant, and perhaps more important in terms of the ramifications, Kennett demonstrates that there appear to be no situations where RI Rule 2 is valid, given the context of either Rule 1 or Rule 5, and therefore by implication that RI Rule 2 is redundant.

In his article, Forte provides an illustration through which, presumably, he seeks to clarify the rules. Unfortunately, it appears to raise more questions than it answers.[91] For example, in respect of 5-6, it is not clear why it has been assigned to G1. The matrix implies that this has been done on the basis of R1 and R4. R1 (the rule of the greatest status quotient) has established G5 as the primary genus, and it is clear that 5-6 is not part of G5. If one is to understand by Rule 1 that the 'genus with the primary role' relates to the local level of the current pc-set (set 5-6), then it is unclear why G8, which has a higher Squo than the favoured G1, was not preferred. Indeed, intuitively one would have thought it be assigned to G8 on the basis of R3, in the same manner as Forte has done in the case of 5-Z38. One could go on to surmise that the 'singleton extension' R4 had for some unspecified reason taken precedence over R3,[92] but 5-Z38 also exists as a member of the same genera as 5-6. The only difference between the generic profile of 5-6 and 5-Z38 is that the latter hits on G3, G9, G10 and G12, all of which (understandably, given their comparatively

91. See Forte 1988a: 236-7, Tables 28 and 29. These have been reproduced in Appendix D, for convenience.

92. Despite the fact that the description of R4 explicitly states otherwise: 'Genera so engaged [as singletons] may incorporate other pitch-class sets not yet situated in the matrix by Rules 1 or 3. Rules 1 and 3 apply if more than one genus is a candidate.' Forte 1988a 234.

low Squos) make no appearance in the reduced matrix.[93] The case therefore has to be made that the rules and their application lack both clarity and consistency, and some form of revision is required.

Taking a more positive view of Forte's illustration, its separation of the 'assignment of genera to a set', from the actual process of 'eliminating genera from the matrix', does suggest a way forward. The following prioritised rules (RI Rules 1-4) are proposed (after Forte):

a) The pc-sets in the matrix will be assigned to a single genus in accordance with the following prioritised rules relating to the hits each set has in the context of the genera:

1) The rule of the greatest status quotient. The pc-set will be assigned to the genus (a) of which it forms part, and (b) which (in the context of the non-reduced matrix) has the greatest Squo. If and only if there is more than one genus fulfilling these criteria then RI Rule 2 will be imposed.

2) The rule of the singleton extension. The pc-set will prefer the genus which has the greatest number of singleton pc-sets in the current matrix. If and only if there is more than one genus with the same number of singleton pc-sets, then RI Rule 3 will be imposed.

3) The rule of 'supporting genus potential'. The pc-set will prefer the genus which derives the 'greatest benefit' in terms of the revised Squo score as produced by the reduced matrix in the case that the pc-set has been included in the calculation. If it is the case that more than one genus has the same 'largest' Squo score in respect of this provision, then it will be assumed that the generic profile for this pc-set in terms of the current matrix cannot be further determined.

b) The genera in the matrix will be assessed for retention or rejection in the reduced matrix in accordance with the following rule:

4) The rule of genera reduction. All genera which retain members after the application of Rule 1 (and if necessary RI Rules 2 and 3), will themselves be retained. All other genera will be omitted.

93. This is not the only problem. While there is no dispute with the assignment of 4-5 to G1, it is not clear why it was done so on the basis of Rule 1 and Rule 4.

These revised rules attempt to capture the essence of Forte's objectives in prioritising the Squo scores while taking into account the importance to the matrix of a singleton genus. It also addresses the issues raised by Kennett, by eliminating Forte's redundant RI Rule 2, and providing a clear methodology for dealing with situations where the assignment of a set to a singular genus is compromised by equal Squo scores.

4.5.3.3 The 'matrix-size adjustment factor' in the generalisation of the Squo.

It will be recalled that Kennett's study, which generalised the Squo, makes a change to the denominator representing the matrix size, in order to take into account an inherent anomaly which is created when genera of different sized progenitors are compared.[94] While this may help in cases where genera are created from progenitor(s) in a similar manner, such as occurs in the case of the Kd complex, it should be noted that the success of this technique is limited in that it does not solve the problem of the Squo's inherent relativity (in relation to the context of the size of matrix, and the size of the genus). To Kennett's argument that it nevertheless makes the Squo as robust as possible, one could also counter that, from a Parks viewpoint, the important issue is how 'perfectly' the genus fits the matrix, and if it so happens that the genus does not include some sets which are of the same cardinality as the progenitor(s) (but obviously do not share identity with the progenitors), then we should not necessarily make a compensatory alteration of the denominator to improve the Squo score.

In any case, if there is no progenitor, or if the genus is formed of the union or intersection of two progenitors which are themselves of different sizes, then it is obviously not possible to invoke the alteration. There is no doubt that the alteration to the Squo score is minimal, but of course it could affect the ordering of Squos, and thus the reduction process.

It would therefore seem appropriate to make the 'matrix-size adjustment factor' optional in the user interface. If there were no progenitors in at least one genus in the current genera system, or if all progenitors in the genera system were of the same cardinalities, (or indeed there were at least one genus which had progenitors of different cardinality) the default behaviour would be applied. Otherwise, a flag could be activated to enable the alteration to go ahead (with the software undertaking a check to determine that the required conditions can be met).

94. See Kennett 1998a: 151.

4.5.3.4 The interpretation of generalised Squos

Kennett makes a strong case for the view that, although the Forte-specific Squo seeks to solve the anomalies caused by the different sizes of genera, its success is only partial. Each genus has a maximum possible Squo which is inversely proportional to the number of its members, and each matrix (or set of pc-sets representative of a segmentation) has a similar 'ceiling' inversely proportional to its size.[95] The significance of this is apparent when the Squo scores of individual genera are compared, and the 'performance' of a genus in respect of a given segmentation is assessed in the context of those of other genera. Each in a sense has its limitations, due to the nature of its structure. Moreover, it is clear that in order to assess these limitations accurately, it is necessary to break down that 'structure' to a more detailed level, i.e. the level at which the groups of sets are distinguished by cardinality (cardinalities 3 to 9).[96]

In order to take these 'limitations' into account Kennett in his 1995 study offers a new matrix which compares the ratio of the hit-counts to the sets in the matrix, with the ratio of hit-counts to the sets in the genus, *for each cardinality*,[97] both of which are potentially significant measures. The higher of the two percentages is deemed to represent the 'implied potential' for that cardinality within the given genus/pc-set matrix. The ideas are summarised through his notion of a 'percentage of fulfilment' which offers an indication of the significance of a genus to a given segmentation.

To summarise with an example: if a certain genus has only three members of n cardinality, and all three members appear in the matrix, then it would appear that the representation is significant. However, in the matrix there may be, say, 15 members of n cardinality, and so the Squo would be calculated on the basis of a denominator of 3 multiplied by 15. The fact that the representation of the genus was significant (in the context of this cardinality) could be lost in the Squo calculation (which naturally is made on the basis of all cardinalities), so we would say its Implied Potential (IP) is high on the basis of the counts by cardinality (for the genus). The opposite could also be true: that is, the hit list for a given cardinality within a matrix might include all seven members of that cardinality, yet there could be, say, 25 members of that cardinality in the genus. Once again

95. See Kennett 1998b: 190-191. Kennett's Table 11 and Fig. 1, referred to below, support this argument.

96. This is not discussed in Kennett 1998b, but is evident from the more detailed discussions in Kennett 1995.

97. See Kennett 1995: 210-215.

the significance of the former may be lost when the Squo is calculated, and so the IP is high on the basis of the fact the counts exhaust the number of sets of that cardinality in the matrix.

Therefore, Kennett proposes that the IP is cardinality-specific and represents the higher value of either the hit-count against the matrix (which he calls 'cm'), or the hit-count against the genus (which he calls 'cc'). The 'percentage of fulfilment' (or POF) for an entire matrix is defined as the average of the six 'higher-value' figures (representing the cardinalities 3 to 9, excluding the cardinality of the progenitor of the Kd-complex).

The matrix, which can be set up to display the 'cc' and 'cm', as well as the IPs and the final POF score, can thus be used as means of checking the validity of a genus which has been highlighted by its generalised Squo score. The POF matrix makes no assumptions about the nature or structure of the genera from which it is constructed, which suggests it can be scaled to the generalised genera proposed here. The only problem in applying POF to generalised genera is that Kennett's POF excludes the cardinality of the progenitor in the averaging calculation, yet in a generalised model one cannot assume that there is a single progenitor (there may be no progenitors, or there may be several of differing cardinality). In order to address this issue it is proposed that the IPs of all cardinalities be taken into account in the calculation of the POF, and so the POF would be the average of the IPs over the *seven* cardinalities. This will mean the POFs calculated by *Set Manager* in the current study will not be compatible with Kennett's originals. A later version of the program could work around this problem by building a functionality whereby in a second pass the user could fill out a dialog box which would determine which cardinality (or cardinalities) be omitted for each genus.

4.5.3.5 The generalisation of 'Difquo'

Forte's measure 'Difquo' which indicates a level of difference between two genera in his system based on the list of sets in each, lends itself almost directly to a form of generalisation. However, a decision must be made as to whether it is appropriate to compare genera in which the progenitors have different cardinalities. After all, it is an 'averaged' measure – the calculation is made on the basis of a non-weighted average across each cardinality (for cardinalities 3 to 6). Thus, in each cardinality, the corresponding sets are subtracted from the non-corresponding sets (A), the corresponding sets are subtracted from the total sets in the genus of that particular cardinality (B), (A) is divided by (B), and the results for each cardinality are summed and divided by the number of cardinalities, which in the case of Forte's genera will always be four.

In the light of this, and in light of the fact that it is an absolute measure of difference between two groups of sets, it would seem that there is no reason for this measure to be restricted to differences between genera based on progenitors of the same cardinality. Indeed, one could include in the calculations genera which have no progenitor. In terms of the calculation, the only alteration required by the general case is that the averaging of scores for each of the cardinalities should extend, rather than from 'three-member sets to six-member sets' (which were necessary in Forte's model), to 'three-member sets to nine-member sets' in the more general case.[98] In this way an absolute difference between groups of sets can be used which indicates through its scale of –1.0 (indicating equivalence) to 1.0 (indicating complete difference).

4.6 *Summary*

The general focus of the current chapter has been to outline the nature of the pursuit of the 'post-tonal perspective' in the analyses which follow. The recent discourse in which the development of pc-set theory into a theory of pc-set genera has been promulgated has indicated a feasible future for pc-set theory. However, genera theory's disparate paths (for example that of Forte and the two versions of Parks), the sometimes confusing nature of the discourse (as suggested by close readings of Forte's various rules), together with the lack of pragmatism in approaching the issue of how theorists can assess and develop genera in order to support further research, have dictated that in order to move the concept forward, some form of generalisation on the basis of determining a 'lowest common denominator' between Forte and Parks is necessary. The primary objective of the foregoing has been, using the work of Kennett as a basis, to define the grounds upon which such a level of generalisation might progress.

Therefore, the important distinction manifest in Forte's work, between the formation of genera and the interpretation of those genera, has been generalised so as to be applicable to any formulation of a genera system. The issue of whether Forte's twelve genera are well formed (given their origins in the inspection and comparisons of IVs, and their associations with particular 'external' concepts) has not been addressed, as it is regarded as secondary to that of how generally applicable the theory in its entirety can be. In support of this position, the work of Parks offers a useful antithesis to Forte, in that he challenges the restriction to a single system of

98. It should be noted that if this more general model were to be applied to Forte's full genera (including the sets of cardinality 7-9 as well as the remaining Z-related hexads), then the Difquo scores would be exactly the same.

twelve genera through the usefulness of the 1989 formulation (the value of which Forte recognises) and through his more general 1998 proposal,[99] as well as noting the importance to analysis of 'knowing the properties of the model ... so that we can extend its positive analogy to the object.'[100]

As for Parks's theory, the current generalisation takes into account the full gamut of possible genera, and applies Fortes 'heuristics' to all those situations.[101] Moreover, the next chapter's realisation of this functionality in terms of software will offer the means by which analysts can quickly assess which genera will work and which will not with a given segmentation, in order to focus on the properties of the model. It will also define the parameters by which this tool will be used in the current study in order to depict the post-tonal perspective in respect of Schoenberg's Opp. 6 and 8.

99. 'The limitation to twelve genera, however, also means that for many musical objects, several genera may provide a "partial fit", but no single genus will provide a "perfect fit".' Parks 1998: 212-213.

100. Parks 1998: 212.

101. The characterisation of the Forte/Parks dichotomy as 'Forte's heuristics as opposed to Parks's hermeneutics' was proposed by Ayrey (Ayrey 1998: 175). Ayrey was rebuked to some degree by Parks's comment (Parks 1998b: 237), yet it remains difficult not to find sympathise with Ayrey's comment.

Chapter 5: The analytical use of pc-set genera.

5.1 Computer-aided pc-set analysis

In examining the reasons for why 'pc-set genera ideas haven't been used very much' Allen Forte suggested that one of the problems is that 'you really need a computer program to generate matrices, and those are not very widely available'.[1] It is clear that the large numbers of calculations suggest computer support is warranted, and given the objective of the generalisation of genera argued in the previous chapter, a significant degree of customisation is necessary. Moreover, an approach to the analysis of the repertoire identified must be proposed which allows the data such a program might generate to be interpreted. These issues are the primary concerns of the current chapter. An initial section will briefly outline the nature of the computer program included in the study and summarise the functionality, making reference to the more detailed description found in the Appendices. A central section will detail the algorithms that the software uses at a level which would enable transferability to other applications, but also be intelligible to a theorist who is, nevertheless, not a specialist in computer applications. Such descriptions are deemed to be important to verify to the non-specialist exactly what the program does at the points in its processing where its activities are not immediately obvious (nor directly verifiable). A final section addresses the ways in which the software might be useful for analysis while also revisiting the issue of segmentation in the light of the generalised genera.

5.1.1 Introduction to *Set Manager*

In view of the need for a computer program, *Set Manager* is offered as an aid to analysis in the current study. Written in *Visual Basic* using object-oriented techniques, it interfaces with a database in order to store pc-set data as well as the user-entered data. The database is set up by the installation program included on the CD-ROM, alongside the program executable and the associated dynamic link libraries.

While the next section will outline the functionality of the software as well as document some of the algorithms it uses, the detail of how the program has been designed, its usage of 'object-oriented' programming techniques, and a description of its architecture is described in Appendix C. A 'User Manual' for *Set Manager* is presented in Appendix B. It is not practicable in either

1. Forte 1998: 231.

place to offer full documentation of the software,[2] given that a considerable amount of the pc-set functionality has been discussed in broad theoretical terms and that the algorithms for the standard functionality of pc-set analysis are well-documented.[3]

5.1.2 Software functionality

The theoretic properties of a generalised model of pc-set genera were outlined in the previous chapter by examining the work of Forte, Parks and Kennett to determine the areas of common ground. By adopting the structure of Forte's theory and using Kennett's work as a foundation, the theory was repositioned in order that it accommodate the more generalised vision of Parks. A possible realisation of these theoretical proposals in practical terms can be illustrated by observing the fundamental requirements for the software built for the current study.[4]

1) Pc-sets will need to be identified for a given group of notes, and saved. In 'saving' the set, it will be necessary also to save their association with a given segmentation, which in turn will relate to a segment of a score. This will facilitate reference at a later date. There is also a requirement that a single pc-set may need to be part of different groupings.

2) The set complexes (Kh, K* and K) of pc-sets will need to be built and displayed. Support will have to exist for building the set complex graphs for given groups of sets (which relate to the segmentations in the score). Similarity relations (between sets of the same cardinality) are also required.

3) A mechanism which facilitates the modelling of genera, in accordance with the rules discussed in the previous chapter, is required. Genera, once modelled, will need to be saved to long-term memory as a list of pc-sets. Other properties of the genus, such as a description detailing how it was formed, whether or not it has a progenitor, how many progenitors it has etc., also should be saved. The user interface will require edit and delete facilities for the genera.

4) Genera will need to be grouped (and saved) into 'genera systems'. A genera system will consist of one or more genera, and will provide a context for those genera. Default genera systems will consist of 'The Forte genera', 'The *K*/Kd-complex*', and 'The five "Parks 1989" genera'. The user-interface will need to allow further custom built genera systems to be saved and edited.

5) The user interface will include a two-dimensional matrix through which one axis will display the pc-sets in a segmentation, and the other will show the genera in a genera system, in the manner of Forte's matrices. The matrix content will therefore show the 'hits' (signifying an inclusion) of each set against each genus. The functions which can be applied to the matrix include the Squo function, the Difquo function and the Reduce Matrix function. The segmentations (groups of sets) and genera systems (groups of genera) will effectively be variables in the matrix, while the functions noted above will effectively be constants whose behaviour can be affected by the properties of the variables.

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2. Full documentation of the 12,000 or so lines of code would take a thesis-length discussion on its own.

3. See, for example, Morris 1987 and Rahn 1980, not to mention Lewin 1987 and Forte 1973.

4. This expands the more general requirements suggested in Section 4.6 (Chapter 4: 94).

It is therefore proposed that in particular Requirements 3 and 4 will address the generalisation of building genera with the former representing the process of modelling genera and the latter the idea of a genera system which provides a context for custom-built genera. Requirement 5 offers the means of profiling a segmentation in terms of genera systems, hence providing a means of realising the revised rules for the interpretation of genera.

The means by which the theoretical model relates to the practical solution provided by *Set Manager* are dictated by the algorithms which underpin the genera sections of the program and are explored in the next section.

5.2 Algorithms

The algorithms represent the logic by which data (which may or may not be numeric) may be transformed and processed, enabling systematic processing such as provided by computer program. As it would neither be practical nor feasible within the context of the current volume to present all algorithms underpinning *Set Manager*, the mechanics of realising Forte 1973 have not been included. Moreover, the algorithms described below are offered at a level of abstraction which transcends a particular programming style or language, in order to make them comprehensible by non-specialist readers.

5.2.1 Genus modelling

5.2.1.1 The relationship between task and 'rule'.

In order to afford the end-user of *Set Manager* a maximum level of flexibility in modelling genera, the various techniques used by Forte and Parks which had been presented as 'rules' have here been broken down (or reduced) into a manageable set of discrete 'tasks'. Representing a level of detail below the level of the 'rules', the tasks themselves have been defined in the software in terms of the issues highlighted in the previous chapter, thus allowing the user to take into account the issue as defined. For example, in order to reproduce Forte's Rule 1 for a genus with two progenitors the user would: (1) select a progenitor set; (2) call the function which generates the Kh complex of the set; (3) select a second progenitor set; (4) call the function which generates the Kh complex of the second set; and (5) call the intersection function which would produce the intersection set of the two.[5] The table in Fig. 5.2 (shown on the following page) lists all the tasks which constitute the software solution that addresses Requirement 3, offering an indication of which rule or what general purpose the task holds.

In the software, each task corresponds with a function which operates on an input object (the 'argument' which is a pc-set, or a group of pc-sets), and the results of applying that function, normally in the form of a 'result set' (the 'return' group of the function), is output to the screen. This output can become the subject of another 'task' (which in terms of the program would mean it becomes the input to another function) that will also produce a result set. In this way a chain of tasks in which the output of one becomes the input of another can be used to model a genus, while at the same time log of the various paths undertaken can be compiled and maintained.

Fig. 5.1 (below) shows the tasks (or underlying program functions) which are required to reproduce the rules and other genera-forming activities that have been noted in the discussions of existing genera systems.

Genera System	Tasks required (in sequence)	Notes
Parks 1989 (i)	Load K* complex	The K* complex is the basis of this system.
	Load Z-related sets	Must generate the list of Z-relations (ancillary members).
	Generate the union	The final group is the union of the K* complex and the Z-related sets.
Parks 1989 (ii)	Load the Parks interval vector	Must generate (with user input) the genus based on the interval vector.
Kd Complex	Load K* complex	The K* complex is the basis of this system.
Fortean Genera	Load the Kh (for each progenitor)	The Kh complex is the basis of this system. Each complex will populate a new box.
	Generate the Intersection	Must determine the intersection group of the progenitors' Kh complexes.
	Apply Rule 2	Rule 2 is applied to the intersection group.
	Apply Rule 3	Rule 3 is applied to the output of Rule 2.
	Reduce to 3-6 cardinality	This function is applied to the output of Rule 3.

Table 5.1: The default genera systems and the underlying tasks

5. This 'breaking down' of the rules into atomic units, is not always observed. Thus the task of imposing GF Rule 2 on a group of sets would consist of the singular task of selecting the input group, and clicking on 'apply Rule 2'. For this reason the objective of this section is to describe the algorithm behind GF Rule 2 in order to reproduce the rule.

Task Name	Comment on Functionality	Theoretic ref.
Kh, K*, K	Takes the currently selected pc-set and generates the appropriate complex. Note that the set itself is not carried over.	Forte Rule 1 (part) Parks
Rp, R1, R2, R0, RpR1, RpR2.	Takes the currently selected pc-set and generates the sets which form part of the appropriate similarity relation. Note that the set itself is not carried over.	none
Add main set	Takes the currently selected pc-set and places it into the group as indicated by the user. The user is prompted to determine whether the complement of the currently selected pc-set is to be added as well.	Forte Rule 1 (part)
Intersection	Takes two groups of pc-sets and generates the group of pc-sets which form the intersection of the two.	Forte Rule 1 (part)
Union	Takes two or more groups of pc-sets and generates the group of pc-sets which form the Union of the input groups (removing any duplicates)	none
In 1 not in 2	Takes two groups of pc-sets and generates the group of pc-sets which exist in the first which do not exist in the second.[6]	Forte Rule 3 (part)
Exclusive Or	Takes two groups of pc-sets and generates the group of pc-sets which form the 'Exclusive Or' of the two (that is the union of the two sets minus the intersection).	Difquo
Remove Sel	Allows the user to remove a selected set from a selected group.	none
Reduce to card 3-6	Generates the group of sets which represent the removal (from the input group) of all pc-sets of cardinality 7-9 and all hexads whose 'order' is greater than 35.	Forte (general)[7]
Rule 3	Generates the group of sets from an input group in which sets which have no complements have been removed.[8]	Forte Rule 3
Get Z-related sets	Generates the group of pc-sets which are the Z-related correspondents of any Z-related set in the input group.	Parks 1989 (part 2)
Generate Complements	Generates the group of pc-sets which are the complement sets of all sets in the input group.	none
Rule 2	Generates the group of pc-sets which result from applying Rule 2 to the input group (see below for a detailed description)	Forte Rule 2 (Part)
Forte Genus	Takes a single pc-set which acts as progenitor, and generates the group of pc-sets which form the genus around this pc-set by using Forte's methodology.	Forte (Rules 1-3)
Parks's interval vector	Generates a non-cynosural genus by using as a model Parks's inspection of interval vector.	Parks (diatonic genus)

Table 5.2: A list of the 'tasks' proposed for modelling genera

6. Note that in the application the user is able to indicate which group becomes the main group (i.e. the group whose sets will be checked against the other to ensure they don't exist within in it).

7. This feature has been included to support Fortean genera, but in order to mimic the building of Fortean genera it must be applied as the last step (which is not, strictly speaking, the way Forte demonstrates it). Note that the module *Forte Genera Modeller* has been built within the application which, although producing exactly the same results as can be 'manually' attained here, creates Fortean genera by applying the tasks in exactly the order that Forte uses.

8. It is important to note that in order to mimic Fortean genera this rule must be applied before the reduction to cardinality 3-6.

It is clear that in the majority of these tasks, such as 'union', 'intersection', 'reduce to 3-6 cardinality' etc. there is no need to describe any underlying algorithm as the task itself is intuitively comprehensible, and inherently verifiable by the examination of its use in the software. Although the particular deployment in *Set Manager* may be of interest to a programming specialist, the details of the design are not elucidated here. The sole exception to this is the case of GF Rule 2, detailed below.

5.2.1.2 The algorithm for genus formation (GF) Rule 2

It will be noted that GF Rule 2, the generalisation of which was discussed in some detail,[9] is represented in the software as a single task, and while it would be possible to break it down into sub-tasks that could be presented in a user interface, the separate sub-tasks lack the intuitive character of the other tasks that have been assembled, and could cause confusion. As the single task hides a multitude of sub-tasks, it is necessary to document here the various steps in the underlying algorithm.

It was proposed above that in order for GF Rule 2 to be applied to a group of pc-sets, then it is necessary that it have a 'viewpoint', that is, a pc-set which is a member of the underlying group. The deployment of the generalised GF Rule 2 in *Set Manager* 'tries' all possible viewpoints, each time recording the results. At the end the results are displayed and the user can 'choose' a viewpoint, or allow the software to choose (one of) the highest scoring viewpoint(s), to output to the screen. The algorithm as described below begins at the point that a 'viewpoint' is given the focus in the code, so it is therefore applied to each pc-set in the group, as each pc-set receives the focus.

The GF Rule 2 algorithm is as follows:

1) Choose a pc-set – call this X. X represents the viewpoint around which the current iteration of the algorithm runs.

2) Assess the cardinality of X. Call this cardinality n.

3) Check that each set of cardinality n+1 contains X.

4) When Step 3 is true (does contain X), retain the set. When Step 3 is false (does not contain X) remove the pc-set of cardinality n+1.

At this stage all pc-sets of cardinality n+1 will contain X, and they will be confirmed as *bona fide* members of the group. Note that there is no information in the algorithm concerning the connection

9. See Chapter 4: 100.

of the group of sets of cardinality not equal to n, with the sets (if there are any) of cardinality n which are not X.

5) Move focus to the next cardinality (n+2). Check that each set of cardinality n+2 contains at least one pc-set of cardinality n+1.

6) When Step 5 is true for the current pc-set of cardinality n+2 (a pc-set of cardinality n+1 has been found which contain the current pc-set), then retain the pc-set. When Step 5 is false (no pc-sets of cardinality n+1 can be found in the current set of cardinality n+2) then remove the pc-set.

7) Move focus to the next cardinality (n+3). Repeat Steps 5 and 6 in respect of cardinalities n+3 and n+2.

If the genus is a Fortean genus, at this stage the algorithm would have been completed, because the focus of a Fortean genus would be a trichord, which is the lowest possible cardinality of X. Step 7 would have checked all the hexads for pentad inclusion. Moreover, in the case of multi-progenitors the fact that the intersection of the respective progenitor's Kh complexes would have been invoked, means that Steps 3 and 4 will render all tetradal sets true (which will ensure these tetrads are in Kh with all of the progenitor trichords) and therefore the group checked will be true for all trichords. For generalised genera (where (a) there will probably be sets larger than hexads in the group, (b) the progenitor's cardinalities may be larger than 3, and (c) X might not be a progenitor) the algorithm must proceed as follows:

8) Repeat Step 7 until n+a = 9, where 'a' represents the number of 'move focus' iterations.

The next stage represents a mirror image of what has happened hitherto. It is necessary when n is > 3 (i.e. the cardinality of X is > 3).

9) Check that each set of cardinality n-1 contains X.

10) When Step 9 is true (does contain X), retain the set. When Step 9 is false (does not contain X) remove the pc-set of cardinality n-1.

11) Move focus to the next cardinality (n-2). Check that each set of cardinality n-2 contains at least one pc-set of cardinality n-1.

12) When Step 11 is true for the current pc-set of cardinality n-2 (a pc-set of cardinality n-1 has been found which contain the current pc-set), then retain the pc-set. When Step 11 is false (no pc-sets of cardinality n-1 can be found in the current set of cardinality n-2) then remove the pc-set.

13) Move focus to the next cardinality (n-3). Repeat Steps 11 and 12 in respect of cardinalities n-3 and n-2.

14) Repeat Step 13 until n-a = 3, where 'a' represents the number of 'move focus' iterations in the second half of the algorithm.

15) End.

In the user interface, the results of all the viewpoints are presented in order to allow the user to select the one which will then return the particular group of pc-sets that is required. This solution assures the end-user of maximum flexibility in deploying GF Rule 2.

5.2.2 Generic profiling and the rules for interpretation of generic relations

Just as the functionality which governs genera formation was encapsulated by a single 'screen' in *Set Manager*, the process of profiling genera which roughly corresponds with Part 2 of Forte's theory, is also depicted by a single module in the *Set Manager* software. The first and most important requirement of the screen underpinning the module is to provide a graphic display of the hits between the pc-sets in the segmentation under consideration, and the genera which constitute the current genera system. The screen has the ability to change the genera system, which clears the module of any previously calculated Squos and reduced matrices (as well as, of course, the hit lists). On the other hand, the screen does not have the ability to change the segmentation, as the segmentation has been set when the screen opens. This ensures that no confusion arises, and where, for example, a comparison is required, this functionality can be accommodated by building two separate screens.

In view of the theoretical discussions of the previous chapter, a provision must be made which allows for the Squo adjustment factor to be taken into account. This element is part of the properties of an individual Squo and, therefore, should the setting change, it will render the Squo calculations inaccurate, and they must be recalculated.

5.2.2.1 The algorithm for the Squo calculation

As discussed earlier, the Squo is a representation not of the genus, nor of the pc-sets in the segmentation, but of the *relationship between* a genera system and a given segmentation. If either of these elements change, then this relationship has changed signifying that the Squo has to be recalculated.

The algorithm begins at the point where sets have been loaded, a genera system has been chosen and the appropriate setting for the Squo adjustment factor has been made. This algorithm iterates for each genus in the current genera system.

1) Choose a current genus. Call this Genus X.

2) Determine the total number of sets belonging to Genus X.

3) Determine the setting of the 'Squo adjustment'. If the setting is 'on', then attempt to determine the cardinality of the progenitors. If either the setting is off or the cardinality cannot be determined, the Squo adjustment is set to false, otherwise it is set to true. Set the Squo adjustment factor to 0 (this will be incremented when adjustment is required).

The following section examines all the pc-sets in the current segmentation to count hits and the total in the matrix (taking into account the Squo adjustment). These values, along with one to record singletons, have been set to zero. Note that each pc-set is assumed to have a value set to indicate the number of hits it has against the entire genera system (called No_Of_Hits).

4) Choose the current pc-set from the segmentation list. If this is the first iteration, it will be the first pc-set on the list, if it is the second iteration, it will be the second pc-set on the list, and so on.

5) Increment a value (hits) if the current pc-set is in the current genus.

7) Increment a value (singleton) if the current pc-set is in the current genus and the No_Of_Hits value is 1.

6) Increment a value (matrix size).

7) If the Squo adjustment is true and if the cardinality of the progenitors is the same as the cardinality of the current pc-set and if the pc-set is not one of the progenitors, then increment a value (Squo adjustment factor).

8) Repeat Steps 4 – 7 for each pc-set in the current segmentation.

The various values required for calculating the Squo for the current genus have been assembled, and so the Squo calculation can take place.

9) The Squo value = 10 * hits / genus size / (matrix size - Squo adjustment factor).

10) End.

Ordinarily, the use of the Squo calculation in *Set Manager* takes place when the 'hit list' for a genus is assembled, and all Squos for the given genera system will be calculated, temporarily stored and presented to the screen, alongside the number of singleton sets each genus has. The complete set of Squo calculations for a given genera system is a necessary precondition for the application of the 'reduce matrix' function.

5.2.2.2 The algorithm for the rules of interpretation of generic relations.

The reduced matrix is another example of a single 'task', represented in the user interface by a single 'button', which governs a large number of steps. The following algorithm documents those steps. The starting-point assumes that on the one hand the pc-sets which constitute the segmentation which is currently under 'investigation' are laid out in a list, and that the Squos (one for each genus) have been calculated (including a 'score' for singletons) and are available (as described above). The following set of steps will be iterated for each set in the segmentation (list):

1) Choose the current pc-set. If this is the first iteration, it will be the first pc-set on the list, if it is the second iteration, it will be the second pc-set on the list, and so on.

2) Examine each genus in the current genera system to determine if the pc-set is a member of the genus.

3) Determine the genus with the highest Squo score by keeping a 'running log' of the current highest Squo score and singleton score.[10]

4) Examine each genus to find the one(s) with the highest Squo score and singleton score. When these are found that genus/those genera become(s) the provisionally assigned genus/genera.

5) Move to the next pc-set on the list.

6) Repeat steps 1 – 5 for each pc-set on the list.

At this point all pc-sets on the list will have been investigated and the genus with 'highest scoring Squo' will have been assigned to the pc-set thus fulfilling the revised Rule 1 (the rule of the greatest status quotient). The data pertaining to singletons will have been taken into account, thus fulfilling the revised Rule 2 (the rule of the singleton extension). All pc-sets which have more than one genus assigned will be ready for the application of Rule 3.

7) Recalculate the Squos based on the provisionally assigned genera as they currently stand, as detailed above in the Squo algorithm. (Note that this will take into account the setting of the 'adjusted Squo flag').

8) Examining only the sets which currently have more than one genus assigned, reapply steps 1 – 6, but using the recalculated Squo as the basis.

This will complete the requirements of the revised rules (Rules 1 – 3). It may be the case that some sets still have more than one genus assigned, and at this stage they should be marked accordingly, so that they are easily visible. The following steps iterate through the genera (not the pc-sets) in order to fulfil the revised Rule 4.

9) Choose the current genus.

10) Check to see if there are any pc-sets still assigned to this genus. If there is at least one then the genus is marked for retention, otherwise it is marked for rejection.

11) Repeat Steps 9 & 10 for the rest of the genera.

12) Remove the genera which are marked for rejection.

13) End.

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10. This is achieved by setting a 'Current Highest Squo Score' to 0 and a 'Current Singleton Score to 0' after step 1 (i.e. for each iteration through the list of sets). As the algorithm cycles through the 'hit' genera, it takes note of that genus's Squo Score. If that score is higher than the value stored as the 'Current Highest Squo Score', then the former will become the 'Current Highest Squo Score' and the 'Current Singleton Score' will be set to the value in that Squo's singleton score. If the two are equal, then the respective singleton scores will be compared with the highest stored as the 'Current Singleton Score'. If the score is lower, then no change will be made and the next 'hit genus' will be investigated.

5.2.2.3 Difquo

The generalisation of Forte's Difquo calculation is also deployed in the application by means of a single 'button' in the user interface, and because of its underlying complexity it will be explained here in terms of the algorithm's 'steps'. A generalised Difquo could potentially be calculated on the basis of any two lists of pc-sets. In the user interface in *Set Manager*, it is included in the genera profiling module in two guises: the first (called 'Single Difquo') successively prompts the user for the names of two genera in the current genera system and it returns to the screen the Difquo, while the second calculates and reports individual Difquos for each pairing of the genera in the current matrix. The calculation is slightly different if the genera system is the Fortean genera system, because of the different set of cardinalities which the equation will take into account, as discussed in the previous chapter. The assumptions of the algorithm, therefore, is that it is known whether the genera system is Forte's or not, and that two lists of pc-sets are available.

1) Arrange the pc-set members of the two lists being compared into subsets grouped by their cardinalities.

After this step, if the genera system is Fortean, each of the two lists will comprise four subgroups, otherwise each of the two lists will consist of seven subgroups (even if some of the subgroups have no members). The following five steps (2 - 6) will start with cardinality 3 and will be iterated once for each subgroup.

2) Set the focus to the two subgroups which represent the current cardinality.

3) Count the number of pc-sets in the intersection between the two current subgroups. Call the result Int.

4) Count the number of pc-sets in the 'exclusive or' function between the two current subgroups.[11] Call the result Symdif.

5) Count the number of sets in the two current subgroups. Call the results A and B.

6) Calculate the following formula: (Symdif - Int) / ((A + B) - Int). Store the result (called 'R').

7) Repeat steps 2 - 6 for each subgroup (i.e. each cardinality).

8) Calculate the result of summing all the 'R's and dividing by the number of subgroups (4 or 9, dependent on whether the genera system is Fortean or not). The resulting number is the Difquo and will be between -1 and +1.

9) End.

11. Another name for 'exclusive or' is 'symmetrical difference'.

A third deployment of the generalised Difquo is available in *Set Manager.* On the genus modelling screen, one of the buttons calculates the Difquo. This calculation assumes that the two lists of pc-sets being compared are not Fortean. One of the more interesting applications of this Difquo is to use it to compare profiles of the K* complexes of given pc-sets,[12] in order to examine how given sets differ from each other.

5.3 *Genera theory in practice*

Having briefly described *Set Manager*, and presented the relevant underlying algorithms, it is appropriate to move from theory to analysis and present some of the practical considerations that should be made in the analytical process, thus answering the question of how generalised pc-set genera might be deemed useful for analysis. This will begin with further discussion of segmentation in as much as it interacts with the profiling of genera, both within Fortean genera and in the more generalised model. It will conclude with the way in which the generalised genera will be used as representative of the post-tonal perspective in the analyses, and the analytical strategies which will be entered into.

5.3.1 Segmentation and the pc-set genera

Alongside the need to be aware of the statistics underlying the system which produces the genera charts, there runs the issue of segmentation, also discussed by Kennett.[13] Although segmentation has been widely debated in the context of traditional pc-set theory, there is a sense in which a questionable segmentation which privileges certain combinations (and perhaps ignores others which might be more obvious but less fruitful in terms of relationships engendered) in order to generate a connected complex, renders an analytical result which could be described as neutral, but not necessarily wrong. That means that the relationship between the sets underlying the segmentation and the set complex is direct, and, in a 'worst-case scenario', the analysis could be regarded as plausible but not entirely convincing.

In the case of pc-set genera, however, the addition of just two or three extra sets to a segmentation consisting of, say fifteen, can skew the results in terms of whether a segmentation is, for example,

12. The reader will recall that this technique was discussed in the previous chapter (Chapter 4: 88).

13. See Kennett 1998a.

dia-tonal or atonal.[14] Skewed results could result in an assessment of the harmonic species underlying the segmentation which may be inappropriately aligned with the notion of, for example, 'whole-tone' or 'atonal' (in the case of a Fortean genera system being deployed).

This raises the question of what might be regarded as an acceptable segmentation procedure. For example, the use of genera theory with the imbrication of a melodic line may be difficult to balance with a harmonic segment (which might not be imbricated at all) in the genera-profiling exercise. That is, if a linear phrase is broken into parts in which two five-member sets partition a six-member set, then an analysis based upon the set complex may include all three sets in the complex without cause for concern. The observation that the smaller sets are part of the K* and/or Kh complex of this particular larger one is trivial, but elsewhere in the analysis one may find other instances of the smaller set, in which case an association can be made. In the genera analysis, however, a decision has to be made as to whether to include all three sets, two of them, or just one. If all three are included then one may be privileging the genera associated with that particular phrase, and a distorted view of the Squo may ensue, given the significant impact on the table that even small alterations can make. In general a degree of balance is required: if a single phrase is imbricated, and others of similar textural weight are not, then the analysis might well suffer from skewed results. On the other hand, there are many situations (such as where textural blocks of counterpoint and homophony are juxtaposed) where selective imbrication is entirely appropriate. In such cases a balanced approach is required.

Conversely, if a certain musical figure generates, for example, set 4-19, which might be followed by (in a suitably partitioned harmonic segment) an instance of the same pc-set as part of a separate musical figure, the two distinct instances of 4-19 contribute a significant effect upon the harmonic species of the passage, the degree of which one would expect might be captured by the genera table. However, the genera in which that particular set is a member will receive only one credit (or set of hits) in the genera table, because they are of the same pc-set. If a slightly different segmentation of the same passage were undertaken in which the harmonic segment is the same (4-19), but the segmentation of the musical figure included one more note, and so formed set 5-22, then the genera table would receive a corresponding entry. Thus, assuming 5-22 does not appear elsewhere in the passage, the hit list for the genera table would look quite different, with an

14. See Russ's discussion of Mawer's analysis of Milhaud (Russ 2000: 243-5). Russ makes some 'relatively minor' modifications to the segmentation to find that the generic profiles are 'radically altered'. The issue is also examined in Kennett 1995.

appropriate 'extra hit' for G4, G8, G9 and G10, (alongside G1 and G3 which 5-22 hits but 4-19 does not), skewing the results. In this case the result of the latter would appear to reflect the actuality of the passage in terms of its harmonic species. Once again a pragmatic approach is required, and it is clear that the process of segmentation must be regarded as interpretative and undertaken with due sensitivity towards these possible effects.

5.4 *Procedures to be used in the current study*

The generalisation of genera (and indeed genera systems) which has been proposed, and the fact that such components will form part of a database which allows for large storage and efficient access, suggests that a potentially endless number of genera and genera systems could be available to the analyst.[15] It also offers tools for modelling genera on the basis of a segmentation's set complex, as well as the existing genera in the system.[16] The tools allow experimentation with Forte's and Parks's rules and techniques for developing customised genera, and the generalisation of the Difquo discussed earler allows a Difquo to be calculated between any two groups of distinct pc-sets.

With such an array of tools and limited space available in this study, it is perhaps clear that it will not be possible for all tools to be used in all the analyses which follow, which, after all, are also grounded in other theoretical approaches.[17] Yet it is also clear that some degree of consistency is required in order to assess the usefulness of the new tools, and their impact on the current state of genera theory. Moreover, given the warnings issued by Kennett, and more recently Russ,[18] in respect of the dangers of the 'over-interpretation' of results, the study needs to proceed by being well-grounded in existing theory, in order to save an enterprise which seeks to combine the 'best of the existing' systems from becoming yet another distinct 'theory of genera', further splintering the original enterprise. Some form of strategy is required in order to establish the basis for perhaps further investigation, and unfortunately not all of the potential of *Set Manager* can be

15. See Parks 1998a: 210 on this particular issue.
16. This function is available from the 'Explorer' screen of *Set Manager*.
17. For example, it would be interesting to devise a system based on tetrads (and perhaps even another based on pentads) in much the same way as Forte's system is based on trichords, but such possibilities should be delayed until the results of more conservative approaches, such as that adopted here, are assessed.
18. See Kennett 1998b and Russ 2000.

explored here. The current section will focus on the scope deployed in the analyses which follow, and make a few preliminary observations.

5.4.1 The database of pc-set genera

Having identified a level of generalisation which is common to the model of Forte, Parks and Kennett, it seems appropriate to proceed by using the genera (in the context of their genera systems) which these theorists have constructed and deployed in their own studies, throughout this study. This will illustrate the comparative merits of those genera systems and offer a view of the scope of analytical observation which can be gleaned from genera theory.

Forte's concept of the Squo has been presented in Chapter 4 as a useful measure for neutralising the structural differences of genera, with a view towards comparisons between genera. The current study has expanded the notion of genera to that of the 'genera system' In moving to this level, it is worth re-stating that the Squo remains an effective tool with which genera can be compared *between* distinct genera systems. After all, the Squo simply measures the hits against the size of the genus and the size of the matrix (or segmentation) and, in the context of the calculation, it remains independent of other genera in the system. Forte's concept of reduction (and Parks's preference rules) on the other hand, invoke data assembed from the performance of other genera in the system. Therefore, reduction is regarded as 'genera system-specific'.

In the genera analyses which follow, reduction is used because it represents a moving-away from the 'many-to-one' relationship (potentially many genera for each pc-set in the segmentation) to a 'one-to-one' relationship between genus and musical segment (represented by its pc-set), that enables a form of interpretation to be made. That is (to reiterate the purpose of the reduction algorithm described above), it makes a decision as to which single genus a given set is deemed to be part of, on the basis of the performance of each genus over the entire segmentation. Bearing this in mind, an interesting issue emerges from one of Kennett's techniques, in that he uses a 'second pass Squo' in order to generate a final depiction of the impact of each genus on the segmentation. That is, once the reduction has taken place, the Squo is recalculated using the reduction's assignment of each pc-set in the segmentation to a single genus as the basis for the 'number-of-hits' element of the formula.[19] This generates a view of the effect of the reduction on

19. This point is not examined in depth in either Forte 1988a, Kennett 1998a or Kennett 1998b. Forte's original article (Forte 1988a) offers a number of analytical examples of his system from sections of musical works. In the main, these offer reduced matrices in conjunction with the

the genera, and although it does not alter the status of the 'top-placed' genus, in many cases it will change the order of the other genera in the list from that of the first-pass Squo. While this view is important, equally important is the original (first-pass) Squo, as the resulting prioritisation determines which sets belong to which genus. That is, the comparison of Squos (and the ensuing reduction) is based on a multiple view of the musical segment – an examination from the viewpoint of all genera in the system, so to speak. For interpretative purposes, reduction enables the analysis to identify a singular view of the musical segment.

With these issues in mind, the genera analyses of the Schoenberg *Lieder* in this study will proceed by adopting a form of paradigm for each work analysed, as exemplified (in respect of *Natur*) in Examples 1.6 and 1.7 (See Vol. 2). These present the top three genera (in terms of the Squos) for each of four genera systems considered, together with the number of hits, measured against the sectional structure of the *Lied.* The two examples refer to the two forms of this paradigm – before and after reduction.[20] They will form the basis of the discussions in the text, which will focus on their intepretation offering arguments in support of a particular view, before presenting a pc-set generic view of the passage, in conjunction with further examples that present the reduced matrix of the preferred genera system. A final section will consider the complete work, both in terms of the underlying genera of each section, and in terms of a overview of the whole work.

It is expected that this approach will reappraise the merits of the genera analysis of pc-sets, by a comparative study of the four 'systems', while also offering a view of the pc-set structure of the individual works and their sections. The conclusion chapter will present an overall view of the success of this approach, and make recommendations for future use of *Set Manager.*

5.4.2 A description of the genera systems used

5.4.2.1 The Fortean system

The Fortean system is used for comparative purposes throughout this study, partly because of its importance in the formative stages of genera theory, and partly on account of its prevalence in

original Squos, which is potentially confusing because a reader might assume these Squos were calculated on the basis of the hits actually listed against the genera. Nevertheless, as argued here, the original Squo is important, because it forms the basis upon which the decisions underpinning the reduction have been made. Kennett's matrices, on the other hand, are based on the 'second pass' calculation, done after the reduction has been applied.

20. The two can further be distinguished by the fact that the placing of each genus within a genera system is 'numbered' in the 'before Squo' paradigm whereas there are no 'numberings' in the 'after Squo' paradigm.

current literature. It will also be argued that some of the Forte genera remain particularly useful, especially in respect of the repertoire investigated here. As a consequence of the issue described in Chapter 4, 'Restricting the genera to cardinalities 3-6',[21] the Fortean Squos would not be compatible with the Squos of other systems, because Forte's are calculated on the basis of the cardinality of the 'half genus'. After all, Forte's genera are symmetrical in the sense that the complement of each set is present in the genus, whereas other genera based on the embedding relation may not have this property.

Nevertheless, as observed earlier, in order to examine the appropriateness of the Fortean system in comparison with other systems, it is necessary that the calculations of its Squo be made on the same basis as other genera, and the denominator representing the cardinality of the genus will reflect the entire genus.[22] It should be re-emphasised that the *Set Manager* software can be set to produce results compatible with analyses based on Forte's original formula, as well as the generalised version proposed here.[23]

Another aspect of the Fortean genera which will be examined critically during the analyses is the lack of categorical definition of what the genera actually represent. For example there are two genera which bear the title 'atonal': G8 based on 3-3 and 3-4; and G1 based on 3-5. The two genera are somewhat dissimilar to each other in terms of their content (the Difquo is a substantial 0.61) yet they bear the same descriptive name or 'alias'. Even if G8 were to represent (in Parks's terms) a 'perfect genus' for some segmentation, it is not clear that 'its properties could be understood in some meaningful sense' in a way that would 'extend its positive analogy to the

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21. See Chapter 4: 96.

22. In *Set Manager*, this has been achieved by separating the genus system called '1. Forte Genera System' (which reflects Forte's original calculations) from a custom-built system called '5. Forte System Modified'. This enables users to 'flick' between the two systems on the genus screen and compare the results in the context of a single segmentation.

23. This can be verified fairly quickly with any segmentation, by using the 'Set explorer' window. One can load individual pc-sets to a selected box (click above the box before starting) by using the command 'Add Main Set', having selected the set in the list of pc-sets from the box in the top right corner of the screen (click 'Y' to confirm, and 'N' to the prompt which asks if one wishes to add the complement). When all sets are loaded, click on 'Genera', and the genera window will open with the group of sets which populated the box. From this window one can select any genera system (see the previous footnote). Note that the system has taken into account the 'errata' identified by Ayrey (see Ayrey 1998: 176) as discussed earlier, and so would not give exactly the same results as Forte's 1988 article, in respect of G2, G3 and G4.

object'.[24] That is because the intersected Kh complex around these two sets, together with Rule 2 and Rule 3, lack an intuitive logic that is available to genera which are more simply constructed.

Nevertheless, the following will seek to describe further the nature of Forte's genera through comparisons with genera from the other systems used, and the conclusion will use these observations to provide further description of Forte's genera.

5.4.2.2 Kennett's Kd complex

The usefulness of Kennett's Kd complex, and its broad similarity with Parks's genera, has been described in the previous chapter. The fact that *Set Manager* uses a database to store and calculate genera means that it can potentially store the memberships of large numbers of genera (calculating properties such as cardinalities 'on the fly'). It also uses the properties of database systems to calculate the comparisons (and reductions) of large segmentations with such genera relatively quickly. It seems appropriate, therefore, to make use of the entire domain of potential 'Kd complexes' (i.e. Kds or K*s pertaining to all 208 pc-sets), in making these calculations in respect of a segmentation. This contrasts with Kennett's use of Kd complexes where, in general, he restricts the domain to the sets used within the segmentation. In order to distinguish the concept as applied here from Kennett's, it has been named in the current study the 'K*/Kd genera system'.

Although the functionality to use Kennett's adjustment feature is available in *Set Manager*, in general this has not been used in the analyses which follow. In practice, it was found that when using the domain of the 208 K*/Kd genera the function tended to privilege unduly genera whose cardinality a certain segmentation might favour (for reasons intrinsic to the musical object). Thus, if a certain segmentation had (for good reason, in accordance with the nature of the musical object) a large number of pentads, then pentads would be favoured in the calculation of the Squo scores because those genera would receive the largest 'compensatory adjustment' within that calculation. Where the domain of the genera (or Kd complexes) is limited to the sets within the segmentation, as in Kennett's examples, then the intrinsic relation between genus (or rather set complex) and segmentation offers a stronger argument for applying the technique, in that it maximises the 'scoring potential' of each set. The objectivity invoked in using all 208 sets as potential genera fulfils the objective of identifying the genus which most closely resembles the segmentation, regardless of the 'performance potential' within each individual genus.

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24. See Parks 1998a: 212, noted above (Chapter 4: 85).

5.4.2.3 Parks's genera

Parks himself has suggested that Schoenberg's music is not very well suited to the genera system which he uses.[25] Although it would be possible to present a genera system based on the five Parks genera, this approach has not been adopted in the presentation of the final thesis,[26] as it was not able to offer further insight, or expand and contrast that offered by the other genera systems. Several reasons can be identified for this. Firstly, there is a very significant discrepancy in size between its largest (8-17/18/19: 143) and smallest genus (6-35+: 15), a ratio of almost 1:10, which, for the reasons outlined by Kennett in respect of G4 in the context of the Fortean system, is not ideal when reducing matrices on the basis of Squos.[27] In the case of 6-35+, it is not sufficiently significant in the textures of these works to be prominent, and when it is, its small size exaggerates its importance. Because 8-17/18/19 is so large it tends to cover a large number of sets, and even if it were deemed to be prominent when the genus is related back to the original segmentation, it is difficult to make a clear statement about what it really represents.

The other three genera, (7-35+, the chromatic genus, and the octatonic genus) however, have been deemed very useful, and they form the basis of the proposed genera system outlined below. In this way the 'spirit' of the Parks genera is retained in the proposed genera system, and the 'gaps' left by the rejection of 8-17/18/19 and 6-35+ are filled with other genera.[28]

5.4.2.4 The Parks IV genera system

In the section from Chapter 4, 'Collating and generalising the rules for genus formation', the formation of Parks's chromatic genus was explained as a relation between a set's cardinality, and the appropriate member of the interval vector (in this case the first member, ic1).[29] This formula was used to construct the function 'Parks IV Vector' in the *Set Manager* software, allowing a genus to be created in the same way as Parks has used ic1 to create his 'non-cynosural' chromatic genus. In turn, it will be seen that this genus features prominently in the analyses which follow, offering a useful alternative to Forte's G5.

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25. See Parks's comments in the notes of the CUMAC conference (Forte 1998: 233).
26. Indeed, part of the research which underpinned the study of the genera systems within the analyses in the study did monitor the Parks genera system, and it has been retained in the software included in the study.
27. See Kennett 1998b.
28. Despite its exclusion from discussions the Parks 1989 system is accessible in *Set Manager* as number 3 in the genera list in the 'Genera' window.
29. See Chapter 4: 99.

It is clear that, by using the same method, it is possible to construct genera based on each of the 'interval contents' in the interval vector. Constructed in this manner the genera comprise sets which maximise a given ic member (given the constraints of their cardinalities).[30] It has been decided to construct and monitor, through the analyses in this study, a genera system which is based on genera constructed for each of the six ics.[31] This genera system is called the 'Parks IV System' and is number 6 in the genera list in *Set Manager.*

There are two important qualifications to this. For the reasons outlined in *StrAM* relating to the symmetrical construction of the notion pc-set which assumes octave and inversional equivalence,[32] the ic6 member should be doubled in order to provide a genus which is of comparable size and scope with the other genera in the system.[33]

Secondly, there are a number of sets, which prove to be prominent in the segmentations that follow, which the genera system would not include.[34] There are three possible courses of action. The first is to leave the system as it is in its 'pure form', and if these segments appear in a segmentation, they simply would not be taken into account by the system. While this approach perhaps offers a degree of analytical and heuristic rigour, it does rather compromise and complicate true comparisons of systems if important sets are simply not part of the segmentation. Another approach would be to bundle the offending sets into a genus of their own (which might be appropriately called 'sets with neutral IVs'), but as there are only 16 such sets, this would unbalance the genera system (ratios of 4:1 are not at all ideal). It also might be misleading,

30. It will be recalled that the sum of all ics in a given interval vector will generate a constant result across all sets in a given cardinality.

31. Although mentioned in the Preface, the reader is reminded that in order to avoid confusion with the corresponding ics, the genera names have been capitalised, thus IC1 is used to refer to a genus whereas ic1 refers to 'interval-class 1'.

32. See Forte 1973: 31. Forte illustrates this by showing how a non-inversion equivalence system (i.e. Mod 12) would portray the invariance properties of pc-sets under transposition.

33. The software doubles ic6 automatically, if ic6 is selected as the ic member on which the new genus should be based. Thus if the ic6 member of a five-member set is two then it will be doubled to four which is within the range of (greater or equal to) five minus two. Because this procedure generates a genus significantly larger than the others (70 members, as opposed to between 48 and 58) it may not sufficiently even out the natural bias of the system, but it does produce a superior result to that obtained by not taking any action (which would generate a genus of around 28 members).

34. The full list of sets are 5-11, 5-Z12, 5-Z18, 5-36, 5-Z38, 6-Z10, 6-Z11, 6-Z24 and their complements. Of these 5-Z18, 5-Z36, 5-Z38, , 6-Z10, 6-Z11, 6-Z24 could be deemed recurrent in the analyses which follow. The 'Proposed Genus System' does have the same problem (as indeed does Forte's which excludes 3-6 and 9-6), but the sets it omits are not particularly prominent.

because in these sets, certain ics may have a zero entry, and this does indicate some form of ic profile.

Finally, one could try to find a consistent way of fitting them into the existing genera. As a genera system does represent a 'system of differences', it does allow for a given set to be added to several genera in order to neutralise 'bias'. On investigation of the IVs of these sets, it can be seen that in nearly all cases there are four entries which show a single value, and two which are lower. It seems appropriate, therefore, that they be added to the genera based on the respective four ics that correspond to the 'single' value (i.e. the maximum value for that pc-set). In this way the instantiation of the set in any genus will be neutralised by its instantiation in other genera (for which it has the same ic score). The pragmatic character of this strategy is enhanced by the fact that it helps to address the slight imbalance created by the accommodation afforded ic6 described above.

This genera system, therefore, is totally focused on interval content. One would expect the IC1 genus to reflect chromatic phenomena (note that it is also used in the proposed genera system below), the IC2 genus would reflect whole-tone sets as well as diatonic sets, the IC3 genus would reflect octatonic-based phenomena as well as those based on diminished triads or diminished-sevenths. The IC4 genus would perhaps be a little inconclusive as it would surely identify hexatonic-type sets, but also may include some diatonic and atonal-type sets. The genus based on maximum ic5s would of course be expected to be predominantly diatonic, while the genus based on maximum ic6s would most likely be atonal (although one might also expect some degree of overlap with sets that are part of the IC3 genus).

5.4.2.5 The 'proposed genera system'

The constructed 'proposed genera system' (hereafter called PGS) addresses the need to build new genera (based on formation rules derived from Parks) and to associate these with genera from other systems, which became prominent during the period of initial research. Although such a comparison might seem possible by looking across genera systems without introducing those genera to the actual system (taking into account the argument presented at the beginning of this section), the comparisons would not extend to the reduction process and the depiction of the model in the context of the 'second-pass Squo'. In order to gain a clear view of the final reduced model, all genera must be associated within a single genera system. It will be argued in the current study that in order to identify a genus which maintains validity or relevance across a number of segmentations given the nature of the reduction technique, one should avoid including a large number of genera, and that in terms of Difquo, one should offer a degree of balance. Moreover, some of the criticisms cited in Chapter 4 suggested that the Fortean system at times appears to be compromised by the differences in size between its genera. G4, for example, has 21 sets (or 33 if the whole genus is considered) whereas G2 with 65 members (or 115 if the full genus were to be considered) is over three times as big, and, given the problems noted by Kennett in respect of the different sizes of genera within the Fortean system, it is appropriate to make an attempt to avoid constructing genera systems in which a wide range of member numbers between the individual genera exists.

The system has made use of some 'already constructed' genera and thus includes three genera from Parks's 1989 system: the chromatic genus, the octatonic genus and the diatonic genus (renamed here, in accordance with the naming conventions adopted, the '7-35+' genus). On account of its significant difference from Parks's diatonic genus, Forte's G12 'dia-tonal' genus has also been included.

The new genera used, followed by the three Parks 1989 genera which have been adopted by the PGS, are listed in Fig. 5.3 below, while the system is listed as number 4 in the genera list in *Set Manager*.

Genus name	Alias	Description
6-Z19/44	signature genus (6-Z44 is the 'Schoenberg signature' pc-set.)	Union of the K* complex of sets 6-Z19 and 6-Z44 (which themselves are complement-related), along with 6-20, the hexatonic set.
4-19/17	atonal genus	Union of 4-19 and 4-17 (along with any Z-related counterpart).
4-28+	diminished-seventh genus	K* complex of the pc-set of the diminished-seventh (4-28). This genus offers a symmetrical counterpart to the 'octatonic' genus.
4-21+	whole-tone tetrad	K* complex of the pc-set of the 4-note whole-tone segment.
7-32/34/35	extended diatonic genus	The union of the K* complex of each of the diatonic scales, 7-35, 7-34, and 7-32, along with their respective Z-correspondents.
7-35+	diatonic genus	K* complex of the pc-set of the diatonic scale (7-35) along with any Z-related counterparts.
Chromatic	chromatic genus	The chromatic genus as defined by Parks.
Octatonic	octatonic genus	The octatonic genus as defined by Parks, which is effectively the K* complex of the octatonic set (8-28) together with the Z-related counterparts.
G12	dia-tonal genus	Forte's 'dia-tonal' genus from Forte 1988a.

Table 5.3: The genera of the PGS

The signature genus has been constructed around the K* complexes of two interesting hexadal sets that have been associated with Schoenberg's atonal period, 6-Z19 and its complement 6-Z44. The latter set has been identified with Schoenberg in that it is the set of the composer's 'signature', which, as mentioned earlier, commentators have identified in a considerable number of Schoenberg's works, dating from the period of the Op. 6 songs onwards.[35] 6-Z19 has also been frequently identified with atonal works.[36] The two K* complexes of these two sets were found to embed the K* (which is identical to the Kh) complex of the symmetrical 'hexatonic' set 6-20. Moreover, a set which can be constructed from the combination of 6-Z19 and 6-Z44, 7-21, also embeds 6-20.[37] so a decision was taken to admit 6-20 into the genus.

4-19, the set consisting of the augmented triad to which can be added an extra pc that is a semitone distant from any of its three members, also represents an interesting construct which has been regarded as widely representative of atonal-type music.[38] Its partner here is 4-17, the set resulting from the combined major and minor triads (for example C-E♭-E♮-G) which is equally prevalent in the atonal repertoire. Its K* complex is also remarkably similar to that of 4-19, in that they share some 58 sets (given their totals of 83 and 84 respectively). The Difquo between the two complexes is -0.039, which suggests strong similarity. Their complexes also hold 5-21, 6-Z19, 6-20, 6-Z44 and 7-21 in common, and this suggests that their genus offers a useful complement to the signature genus.[39]

The 4-28+ genus (based on the K* complex of the tetradal set 4-28) has been included in this genera system on account of the intuitive importance of the diminished-seventh construct to the repertoire. The '+' indicates that as a genus it includes any Z-related components of its members, not included in the K* complex. The genus also offers a counterpart to the octatonic genus (which is included in the form Parks has proposed on account of its intuitive pre-eminence in the

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35. Recall that Forte 1978a discusses the signature in respect of the Op. 6 *Lieder*.

36. Forte identifies it, for example, as recurrent and structurally important in Schoenberg's *Farben*, Op 16 No 3. See Forte 1973: 166-176.

37. This is not, in fact, a unique property of 7-21. A second set, 7-22, also embeds both 6-Z19 and 6-Z44, but not 6-20. 7-22, however, does not have the regular currency in the repertoire (nor in the K*/Kd genera counts pertaining to the current study) which 7-21 possesses.

38. See for example Simms on Op. 22 (Simms 1982b) or Forte 1987 and Forte 1988: 218 where 4-19 is cited as being 'highly characteristic of the atonal music of the early twentieth-century'.

39. The final reason for their inclusion is their recurrence in the research underpinning the analyses which follow, in the context of the K*/Kd genera and in the K* intersection genera system (discussed below).

atonal repertoire), and it will be seen that it provides a useful refinement of the idea underpinning Forte's G3 (based on the diminished triad).

In a similar manner, the genus based on the K* complex of the whole-tone tetrad has been included (along with its Z-related counterparts) in order to examine how it might perform in passages which appear to be intuitively whole-tone. It will be interesting to examine how this genus performs in the light of some of the short-comings of Forte's whole-tone 'G2' genus.[40]

Finally, it was decided to include the genus resulting from the union of the K* complexes of all diatonic scale constructs, that is, the major scale, and the two forms of the minor scale (the so-called 'harmonic' and 'melodic' forms). It is important to note that this genus does not aggregate or 'mix' the scales,[41] as would be suggested by a genus comprising the K* complex of a pc-set based on, for example, the major and minor scale starting on the same note. Rather, it treats the three scales as independent units, and therefore comprises pc-sets which have embedding relations with major *or* harmonic minor *or* melodic minor scales. The objective of including this genus is to examine how these constructs interact with music which is inherently diatonic. Note that, in order to ensure that the size of the genus does not make it too much larger than the smaller genera in the system, the Z-related counterparts have not been included in this genus.

In general this genera system is, by comparison with Forte's, constructed in an *ad hoc* manner, with its genera selected on the basis of investigating the successful performance of genera which already exist, and of the performance of K* complexes in the K*/Kd genera system.

5.4.3 K* intersection genera

In the same manner as the database was used to store and construct the K*/Kd genera, it has been used to construct and store the 21,528 genera which can be produced by examining the intersection of each of the K* complexes of the 208 pc-sets with each other, as a separate system.[42]

This part of the program was included in order to make the scope of *Set Manager* as wide as possible. Although the current study might be deemed to follow Forte's method (its 'heuristics')

40. See, for example, Ayrey 1998: 175.

41. 'Mixture' is defined here, as elsewhere in this study, as an aggregation of major and minor scales which start on the same note.

42. Note that this system does not include duplicates (i.e. in the sense of 4-1 1 4-2 as well as 4-2 1 4-1), nor (perhaps obviously) does it include genera based on the K* complexes of sets which do not 'intersect'. The database has been expanded to 21,736 by adding the K* complexes of the 208 sets.

more closely than Park's method (its 'hermeneutics'),[43] given the role played by the Squo and the associated process of reduction, the computer program is intended to cater to as wide an audience as possible. The inclusion of the 21,528 genera representing 'intersections' takes account of Parks's acknowledgement that the maximum number of 'possible cynosural scs' is 4.1×10^{62}). In offering a wide range of distinct genera, for which further refinement might provide a model of 'the perfect fit' genus,[44] it provides a means of identifying the scale of genera types that can be associated with a given segmentation.

It should be noted that, at present, it does not support reduction, as a suitable means of viewing (or indeed managing) such a matrix has not been devised. In this sense its use in the context of the current study is limited, although as such it perhaps finds sympathy with Parks's view. Its use in the current study is therefore not as systematised as the other genera systems described here; rather, it is used to generate a segmentation-specific genus in cases when the other four systems fail to provide a sufficient model, or to provide an introductory view. A description of how *Set Manager* deploys this genera system is contained in the user guide.[45]

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It is important to observe at this stage that the process of selecting suitable genera will always fall between two opposite influences: on the one hand, one can identify a genus which perhaps covers the vast majority (if not all) of the sets in a segmentation – a tailor-made, specific genus (the 'perfect genus' in Parks's parlance), like picking the correct key for a locked cupboard from a pile, to use Parks's analogy. But, also, one wishes for the genus to be equally applicable to many segmentations in the more general work under investigation. The analysis of the early Schoenberg songs would be all the more successful if a single genus (or perhaps a single genera system) could be deemed sufficient to encompass them all. If there are as many genera as there are segmentations used, then, even if one could extend the positive analogy of their properties to the respective musical objects, one would not have a strong case for the sufficiency of the analysis.

The conclusion will address further matters concerning the relationship of pc-set genera and the set complex in terms of the analytical processes and strategies which the analyses will engender.

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43. This refers to Ayrey's classification (cited earlier). See Ayrey 1998: 175.
44. See Parks 1998a: 212.
45. See Appendix B, Section B5.6.

5.4.4 A note on naming conventions

Because of the potential confusion that could arise from discussions which involve numerous genera from various genera systems with similar (but never identical) names, the following naming conventions will be adopted in the analyses. In general, genera will be referred to by their names, rather than by their aliases. In the case of Fortean genera, their aliases will be encased with single quotation marks, and although these aliases will be mentioned at the beginnings of discussions to aid the understanding, their repeated use will be avoided. The aliases of the genera of the PGS will not be encased with single quotation marks, and in this respect are immediately distinguishable from the Fortean genera. The names of the genera of the Parks IV genera system which are aligned with the ic on which they are based will, as mentioned earlier, adopt capital letters to avoid confusion with reference to their ic counterparts (that is IC5 refers to a genus from the Parks IV genera system, whereas ic5 refers to 'interval-class 5'). The names of genera from the K*/Kd genera system will be referred to as genera by the names of the pc-set on which they are based through embedding relations, although on occasion the use of the term 'K* complex' may be used to suggest a more general context.

Chapter 6: The 1903-4 *Lieder* - Analyses 1-4

The first four analyses address *Lieder* which were written during a fairly short time-span, although the texts bear little relation to each other. In particular, the sources date the first three works within a day of each other, just prior to Christmas 1903. It seems unlikely that at the time Schoenberg would have regarded either as the beginning of a new opus. The orchestral *Lied*, *Wappenschild*, which sets a *Wunderhorn* text, had been sketched a month earlier in November, a month in which the two settings of Gottfried Keller that would form part of the earlier *Lieder* set, Op. 3 (Nos 2 and 5), had been completed. Indeed, Schoenberg's return from Berlin in summer of 1903 appears to mark the beginning of a steady stream of *Lieder* that was to extend until the final *Lieder* of Op. 6 in 1905.

Amongst the four *Lieder* of the 1903-1904 group, a number of technical similarities persist, especially between the first two *Lieder*, *Natur* and *Traumleben*, which focus on the tonal conflict between tonic E major and Neapolitan F major, and the playing out of this conflict at the point of recall in the respective third recapitulatory sections. The third *Lied* in the group, *Verlassen*, shares neither the tripartite form nor the key selection of its two predecessors, although, as will be suggested, from a regional viewpoint a number of similarities can be identified. The fourth *Lied*, which returns to Keller for its text, was written somewhat later than the others. Nevertheless, its tonal basis in F major is supplemented by hints of E major throughout (recalling the regions used in *Natur* and *Traumleben*), and its motif-forms can be shown to be similar to those of *Verlassen*, supporting the view that *Ghasel* also belongs to this group.

Analysis 1: Op. 8 No. 1, *Natur*

Whether *Natur* was originally conceived as an orchestral *Lied*, or as a *Lied* for voice and piano is uncertain. Both a *Reinschrift* and a *Niederschrift* exist for a version for voice and piano (the latter is dated 18 December, 1903),[1] although they are unfinished, with the last two lines of text yet to be set.[2] The piano part of the third section includes figures which could not be reached with two hands, whereas up to that point no such complications exist, suggesting that as it was composed the idea of setting it for orchestra occurred to the composer. The *Niederschrift* of the fully scored orchestral version is dated 7 March, 1904, with no significant differences to the published version. The published version forms the basis of the current study.

The theme of the text of *Natur* is Nature's interaction with human life. The idea of cycle, process and growth within human life, itself defined and given meaning by death (lines 3-4), is evoked by two potent metaphors at the outset – the image of day and night flowing into one another in endless sequence, and that of movement and progress – the brook 'flows' into the stream which in turn flows into the sea (lines 1-2). Individual life, however, is 'spirit' (*Geist*), struggle and expression despite the fact we are all subjected to the same experiences (lines 5-8). The common factor to everything, that which gives shape and form to life, is Nature which defines our environment, our collective growth and our existence (lines 9-12). *Natur* is clearly, therefore, an organicist poem which in itself indicates a reason for Schoenberg's interest. It seems likely that Schoenberg viewed the semantic content of the text as a potent vechicle for representing some of the techniques fashioned after work on the completion of *Pelleas und Melisande.*

A) Form and motif

Example 1.1 (see Vol. 2) offers a summary of the sectional divisions used in the analysis, annotated with the harmonic regions (discussed in Section B below). Overall, the form of this orchestral *Lied* may be regarded as ternary in that the phrase and harmonic structure of Section 3 broadly corresponds with that of Section 1, a model which is mirrored within Sections 1 and 3 themselves. In each, the motivic, harmonic and regional structures of the respective first

1. For a description of the versions see Schoenberg 1981b. The *Reinschrift* can be found in Schoenberg 1981b: 15-19.
2. The unfinished score stops after bar 57 of the published Op. 8 No.1 version. In substance the two versions differ only in details, although the interlude between Sections 2 and 3 is expanded by one bar in the piano version.

subsections correspond with the third, while the second offers contrasting material. Section 2 on the other hand breaks down into two subsections, articulated by a half cadence (bar 37). The first is thematic, based on the somewhat distant region of the leading-note, while the second is a sequential passage spanning bars 38-45, the last two bars of which form a climactic anacrusis to the return of the original thematic material at the beginning of Section 3.

i) Motif and developing variation.

The opening monodic trumpet part presents a four-note motif which in various forms pervades *Natur*, and so has been labelled the 'α motif' (see Example 1.2, Vol. 2). Its repetition in the vocal line is immediately followed by an inverted form which preserves the interval succession precisely, and so provides a technical metaphor for the text, '*Nacht fliesst in Tag, und Tag in Nacht*'. Perhaps more significant, however, is the fact that the inversion reveals a symmetrical property of α which would be more appropriate to the serial works of some twenty years later, although Schoenberg makes use of its properties here and during the later sequential passages (such as at bars 38-42). Specifically the inversion operation, when directly applied to the last note of the motif, returns the motif to its first note, and in doing so does not repeat any pc in the process (except of course the first and last note). Lewin has called such operations 'chaining', and has provided a suitable framework for their explication (although the localised nature of this instance suggests it use is limited here).[3]

In the current context it provides a coherent antecedent-consequent structure that reveals a complete theme marked by its tonic at the start and end-points, while at the same time presenting a melody which uses every note of the chromatic hexad, yet again evoking a technical metaphor for the theme of the text: here the chromatic scale could be regarded as representing Nature as the source of all knowledge.

If the technical properties of the inversion operation on the α motif reveal modernist attributes, then the inversion process which one can guage from the bass line (in apparent sympathy with its vocal counterpart), along with the harmonic structure which it underpins, is more constrained by

3. See Lewin 1987: 181 (Section 8.2). Lewin discusses specifically the 'RICH serial transformation'. RI stands for Retrograde of the inversion, and CH stands for 'Chaining'. An appropriate change to Lewin's notation would be to use 'I' to represent inversion on its own, while the 'chaining' process is directed at the last note alone.

the tonal legacy. Thus the 'inversion' takes place in the context of a sequence of scale degrees, as suggested by Fig. 1.1 below.[4]

Examples 1.2 and 1.3 (see Vol. 2) have been constructed in an attempt to capture Schoenberg's distinction between 'variant' and 'developing variation' respectively. These examples refer to Example 1.4, which traces the motifs in the context of a complete score of *Natur*. Example 1.2 traces the thematic course of the α motif throughout *Natur*, collecting its main variants. The rather clever polyphonic variation which heads the second section in bar 31 (see System 'c' in Example 1.2) finds two simultaneous instances of α: the upper part based on a 'diminished rhythm', while the lower part is based on a new syncopated rhythm, anticipated by the rhythmic motif of the previous bar (System 'b'). This leads to similar *Gestalten* in which further intervallic alterations can be found (System 'd'). The truncated α motifs in bar 44 (System 'e') illustrate how the process of liquidation can build a climax through its elimination of characteristic features (i.e. the α motif's characteristic interval pattern) leaving behind a three-note scalar pattern (System 'f').

The function of the liquidation in this case is the anacrusis to the recapitulatory third section, in which α is presented in its original rhythmic pattern. The overall context, however, is the polyphony of the second section, as the simultaneous articulation of α in syncopated rhythms appears here as well, although its rhythms have been doubled (the quavers have become crotchets, and the crotchets have become minims).

The repetition of the cello/bass *Gestalt* in bars 30-31, in both variation and developing variation examples, indicates the pivotal function of this passage. On the one hand it represents an intervallic variant of α which is a motivic component of the vocal line in the first part of Section 2 (see System 'v' in Example 1.3), on the other it presents, for the first time, the syncopated rhythmic pattern (motivic feature 'a') which dominates the remainder of the work (see System 'b' in Example 1.2).

The developing variations presented in Example 1.3 illustrate how 'motivic features' can be identified in order to build a model of the process. The features listed in the 'Key' (shown in the top right corner of the example) are intended to be representative rather than comprehensive, but nevertheless offer an indication of the nature of the process. Thus, although the features indicated

4. Fig 1.1 is on p. 143. It shows the harmonic 'balance' between antecedent and consequent in terms of functional classification, is presented.

in System (ii) might be deemed to be too universal to be of analytical significance, especially in terms of their relationship with System (i), they demonstrate how the balance between similar and contrasting material might be modelled using Schoenberg's examples.

The other systems in the example offer a more persuasive view of developing variation. In the first part of System (iii) the α motif has been significantly altered, and the clearest description of that transformation is to note that it shares the same pc-set with the original α. In the conclusion of the same phrase, a variation can be identified in which the 'interval direction' has been varied (recalling Schoenberg's illustrations of variation in respect of Op. 22).[5] The relationship between System (iv) and (v) (to which features 'x' and 'y' are common) and the rather more obvious relations between the latter and the bass line of a few bars later shown in System (vi) – all provide ample evidence of the intriguing relationship between Schoenberg's later theoretical writings and these earlier tonal compositions.

In general, these two examples assert a distinction between thematic variation, which in this instance, as Schoenberg describes, underpins a sequential passage in Section 2, and the strong structural correspondence (with its associated sense of recapitulation) between Sections 1 and 3, and the developing variation by which distinct thematic ideas are deemed to have grown out of each other, as exemplified by the second subsection of Section 1, or, perhaps more convincingly, by the vocal melody at the beginning of Section 2.

B) The harmonic perspective

The triadic nature of this work points to the importance of an examination of its pitch-class content from a traditional harmonic viewpoint. The regional model indicated by the Roman numerals shown in Example 1.4 (Vol. 2) may initially appear straightforward, but in fact requires some explanation and is suggestive of some consistent aspects of the way Schoenberg uses harmony. Three predominating regions emerge from the example: E major as the central tonic, the Neapolitan F major, and the flat submediant, C minor. While Schoenberg's theory of region suggests this is merely part of the extension of E major, the more detailed examination seeks to address the question of on what grounds may E major be regarded as central, and to what degree are the alternative regions asserted?

5. See Schoenberg 1968: 29.

i) Section 1

The simplicity suggested by the first section's homophonic texture (consisting of a set of primarily root-position triads) is confounded by the elusiveness of regional classification. In Subsection 1, E major is asserted by its reiteration at the beginning and end of the phrases supported by the key signature, rather than through an association with its 'primary chords' (such as IV and V), or by an aggregation of the seven notes of the E major scale. The C minor triad which follows E major (bars 7-8), might be classified as dominant in function on account of the E♭ (enharmonic of E's leading-note), enhanced by the E♭ chord which follows but, as will be argued, its primary function is more referential, in a sense anticipating the regions which follow. Indeed, the C minor triad in the antecedent and the corresponding G major triad in the consequent are members of the region about E major through remote associations only, indicative of an extended E major tonality.[6] Nevertheless, the two phrases offer a form of tonal symmetry in respect of the function of their respective roots (as can be seen in Fig. 1.1 below).

Antecedent	tonic	♭submediant	leading-note	tonic
Consequent	tonic	♭mediant	supertonic	tonic

Fig. 1.1: *Natur*, harmonic 'symmetry' in the two phrases of Subsection 1

The regional plan depicts the abrupt change of region to E's Neapolitan, which marks the beginning of the second subsection (see Example 1.4). The region around F major is supported by chord progressions which, from a traditional viewpoint, are more obviously indicative of key (or region), culminating in its dominant-seventh at the end of the section. This C seventh chord has a dual function: on the one hand it leads directly, in the manner of an augmented-sixth-type progression,[7] to the E major triad of the next bar (which begins the third subsection, effecting a recall of the opening);[8] yet on the other hand it may also be regarded as leading to the F minor

6. In the context of E major, the C minor could be simply labelled as an 'altered ♭VI', but as such is a remote constituent of that region. However, it may also be labelled as the relative minor of the 'altered' chord VII which follows it, or even as the unaltered (natural) mediant of the A♭ chord – itself an altered mediant of E major – which precedes it in bars 3-5. As we have noted, Schoenberg himself was skeptical of trying unequivocally to identify the functional derivation, and the issue serves to illustrate that by observing that it belongs to E major's extended tonality, one can also point to its contribution to the coherence of the harmony is through its capacity (in league with the E♭) to anticipate later events.

7. Similar progressions are classified as such by Wintle in his analysis of *Traumleben*. (Wintle 1980: 62). See also the discussion of *Traumleben* below.

8. One could further argue that this progression C7 – E represents a functional reversal of the E♭ – C minor progression of the opening (which also follows here). Both progressions have more than a hint of the unconventional about them.

chord on which the antecedent concludes, in variance with the first subsection. The F minor forms the basis for a '*Tristan*-type' chord, which returns the regional focus to E major for the conclusion of the section, even though the final chord is the dominant.

The harmonic coherence of the shift towards F minor is enhanced by the fact that triads which were relatively foreign to the E major tonality of Subsection 1 (such as C minor, E♭ major, G major, and for that matter A♭ major in bars 3-5) are more clearly understood as belonging to (and anticipating) the F minor region.

ii) Section 2

The characteristics of E major's extended tonality, C minor and E♭, also feature strongly in the second section,[9] which is marked by a shift in texture from homophony to polyphony. One of the effects of this change is that the harmonic content is less clear and more chromatic, rendering the assignment of harmonic classifications debatable. Nevertheless, the first subsection is clearly dominated by E♭ moving towards its relative minor at the conclusion of the phrase, C minor. The sequential pattern of the second subsection moves chromatically from C back towards E♭. Although the note E♭ is reached, the harmonic content articulates a 6-4 chord with an A♭ root, rather than the E♭ minor triad which would complete the pattern. The chords which mark the lead-in to the new section recall those used in the passage at bars 17-22 in Section 1 (mentioned above, also in the role of preparation of a return to the main material) although the order of succession of the triads is different.

iii) Section 3

Although the content of the third section is based upon Section 1, much of that content, originally based around E, is transposed up a semitone to F major, and the harmony appears to oscilate between E major and its Neapolitan region, F major. The chart in Fig. 1.2 shows the correspondences.

The idea that chord function remains constant while the tonality (or region) is changed is essentially a traditional one.[10] But the preservation of the functional structure of the original

9. This strengthens the coherence of the whole. See Schoenberg 1978: 164, 'if the whole piece is to be unified, however, then the bond must finally be tightened again; and that happens only if the progressions may actually be perceived as consequences of the initial events'.

10. As, for example, in a sonata form movement where the second subject (which might be the same thematically as the first) is reiterated in an alternative key. A good example of this occurs in the

passage amid regions a semitone apart where the oscillations between the two occur within a single phrase, represents an extreme cultivation of that principle.

In the postlude, a new triadic element appears in the form of A minor. A minor represents the region of the minor subdominant in terms of E major, a relationship foregrounded by the progressions in bars 74 and 75. It therefore provides E with a direct connection to its Neapolitan region, F major (which although absent from the postlude, has dominated the work). A minor's absence as a triadic entity to this point (let alone as a region) represents the realisation of an implied connection in which the region around Neapolitan F and the instantiation of C minor is legitimised. In view of Schoenberg's description of the role of the minor subdominant as a source for chromaticism, it is perhaps not surprising to find it in the postlude.

Section 1: Exposition			Section 3: Recall of Section 1		
Bars	**Chords**	**Region**	**Bars**	**Chords**	**Region**
7	I	E major	46	I	F major
8	♭VI–VII	"	47	♭VI–VII	"
9	I	"	48	I	"
10	I	"	49	I	"
11	I	"	50	I	"
12	♭III–II	"	51	II/♭III–II	F maj / E maj
13	I	"	52	I	E maj
14	I	"	53	I	"
15	VI	F major	54	VI	F major
16	I	"	55	I	"
17	VI	"	56	VI	"
18	II7	"	57	II7	"
20	♭VI	"	58	♭VI	"
21	♭II	"	59	♭II	"
22	V7	"	60	IV	"
			61	♭VI	"
23	I	E major	62	I	(F major)
24	♭VI–VII	"	63	♭VI–VII	"
25	♭II/~~I~~	E maj / F maj	64	II	"
			65	II	"
26	♭II/~~I~~ ♭~~II~~7/~~I~~7	E maj / F maj	66	II	"
27	♭III–II	E maj	67	III–VII	"
28	V	"	68	♭VI	"
			69	♭VI	"
			70	♭VI/VI–II7–IV	F maj / E maj
			71	I	E major

Fig. 1.2: ***Natur*****, table which shows harmonic correspondences amid regional differences between Section 1 and Section 3**

first movement of Haydn Symphony No. 104, first movement. Bar 65-72 represents the second subject which recalls the first subject in bars 17-24.

iv) Summary

Context informs the decision to regard E major as the home key of the work. The work starts and finishes in E major, and a number of the subsections also start and finish in E major. However, the alternative regions, F major and E♭ (with their corresponding relative minors) are also prominent throughout. Indeed, the opening chord progression in which E major is juxtaposed with C minor and E♭ is projected into the regional plan, E♭ and C minor forming the main regions of the central section. Similarly, the contrast between E major and F major/D minor which articulates the subsectional structure in Section 1, becomes more dramatic in Section 3 where, as Fig. 1.2 shows, the two regions confront each other. In a sense this illustrates the essence of extended tonality – the F major region is well supported by its dominant (as well as the other notes of its scale) in the music, notes which are not within the domain of E major. Although the two regions are separated in Section 1 (except, perhaps, in bars 22-23), the juxtapositioning of the two during the oscillation between F major and E major in Section 3, effectively 'extends' E major. The important point, however, is that the seeds for this conflict (alongside the conflict with the flat submediant) are sewn in Section 1. Schoenberg's metaphorical prose from *HL* seems most appropriate here:

> We must engage in this movement-generating conflict. The tonality must be placed in danger of losing its sovereignty; the appetites for independence and the tendencies toward mutiny must be given opportunity to activate themselves; one must grant them their victories, not begrudging them an occasional expansion of territory.[11]

The table below (Fig. 1.3) summarises the significant chord classifications, listed in terms of their function against the three significant regions. The '-' symbol indicates that there is no classification available.

		Main Chords						
		E maj	C	Eb maj	G maj	F♯ min	Db maj	Ab maj
Region	E major	I	♭VI	VII	♭III	II	VI	III
	Eb maj : C min	Np : ♯III	VI : I	I : III	III : V	♭iii : ♭v	- : Np	IV : VI
	F maj : D min	VII : -	v(V) : -	- : Np	II : IV	Np : ♯III	♭VI : VII	♭III : ♭V

Fig. 1.3: *Natur*, harmonies by region and by function

The chart is not exhaustive, but includes the main chords used in the work. The C chord has no major or minor designation, as both can be found as significant harmonies in the work. In fact the mixture of C minor and C major provides an important link between the 'alternative regions'

11. Schoenberg 1978: 171.

(or non-home region) E flat major and F major which, given the comparative frequency of 'C chords' in the work, can be regarded as pivotal.

v) 'Transformation' as a basis for harmonic coherence

The harmonic analysis also suggests that Schoenberg's model of chordal coherence (based upon functional classification within tonal 'regions') be supported by the restricted domain of chords used. This allows for sequences of chords or certain associations to develop. Examples include the E major / C minor (or major) successions, or the recurring group around G, D♭, G♭ and C.

An alternative view of harmonic coherence is suggested by focusing on Schoenberg's distinction between chord succession and chord progression, and neutralising 'harmonic function' in the regional/tonal context. Indeed, the prolific root-position triadic chords in Section 1 lend themselves to an examination of relations between roots from the viewpoint of transformational theory. A straightforward example of a symmetrical network of triads, which progress on the basis of a simple tonal process, can be found in the second subsection (Fig. 1.4 below).

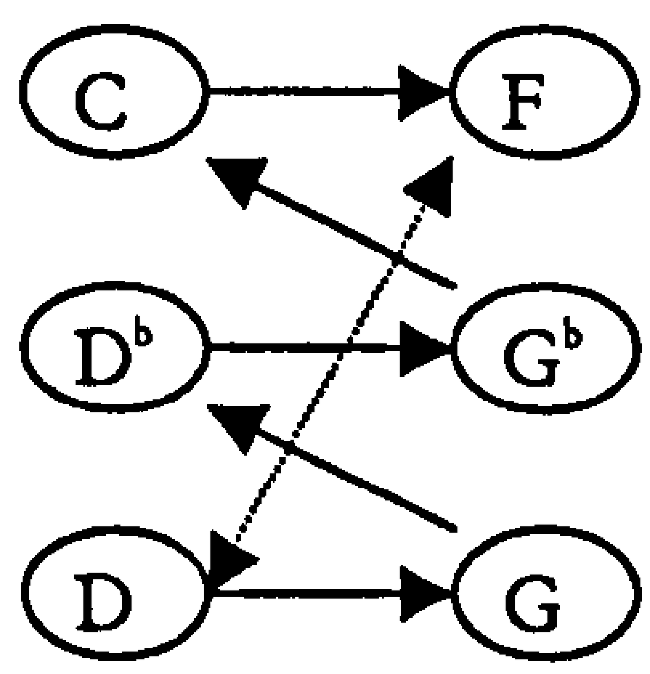

Fig. 1.4: *Natur*, Subsection 2, network of triads

The horizontal right-pointing arrows show roots moving a fifth, while the arrows moving towards '10 o'clock' signify roots moving by tritone. When read from bottom left, following the arrows through to top right, the network mirrors the 'in-time' succession of chords from bars 17-21. The subsection itself does not articulate the progression from C to F but, as noted above, the expectation is realised during the course of the ensuing subsection.

Figure 1.5 expands some of these relations into an abstract network, which encompasses the whole of Section 1. Here the horizontal arrows also represent the V-I 'fifth' relation, the 10 o'clock arrows represent major seconds, while the 1 o'clock arrows represent the relative major/ minor or 'thirds' relation. The curved arrows represent major third progressions (as a group of joined seconds). Note that the major or minor designation of the triads is neutralised in this model – it is solely concerned with root progression.[12] While it is not possible to trace the complete serial succession of chords (as in Fig. 1.4), and indeed not all progressions in the musical surface are represented by arrows, the graph does highlight some relations which are not necessarily obvious from the musical surface. For example, the E major-C minor progression is characterised as a continuation/mirror of the process which begins with the A♭ chord in bar 3-4. The descending seconds suggested by the opening (A♭–F♯–E major) are continued into Subsection 2 when E major moves down to D minor. C minor's association with E♭ mirrors the D minor/F major oscillations of Subsection 2, as well as the progression (bars 11-12 and 27-28) from E major to G major. The opening chord (A♭) is also given enharmonic equivalence, in a thirds relation with B major, the chord with which the section closes. This network also points to the absence, noted earlier, of chords based upon A.

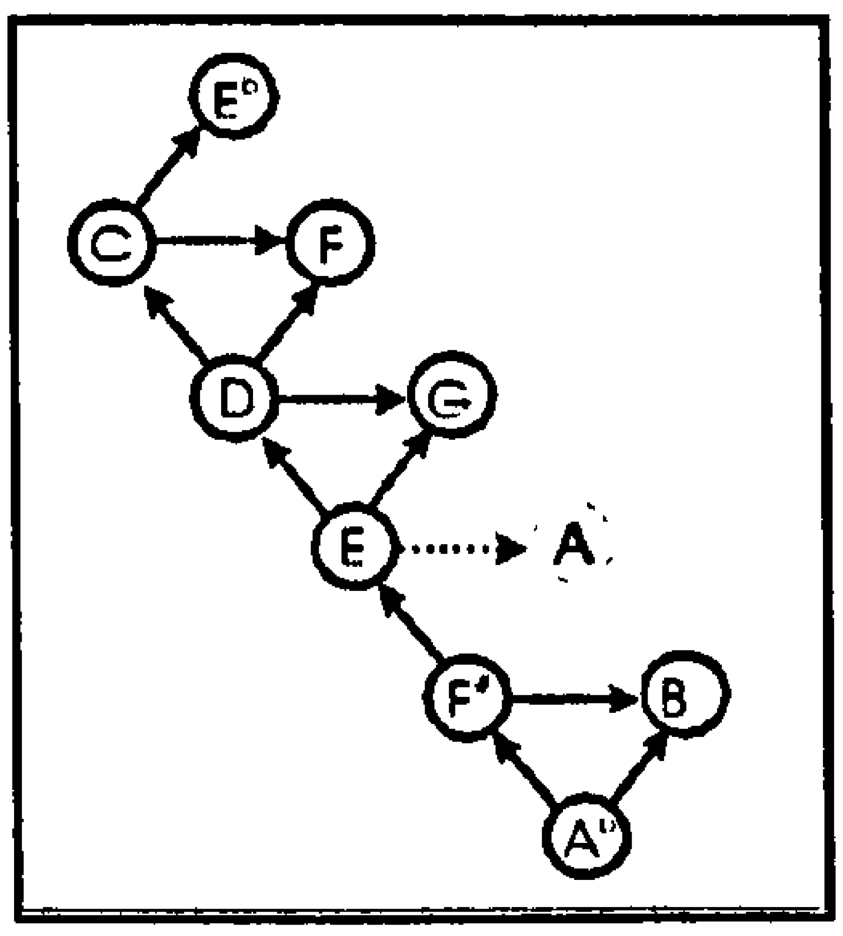

Fig. 1.5: *Natur*, Section 1, network of tonal centres

The intervals of the root successions highlighted in these networks might also be extended to the other sections of *Natur*. Thus, in the central section, although the harmonic roots are more recalcitrant to unequivocal identification, it seems clear that the section begins with E♭ (bars 32-3, 35) before swiftly moving to a triadic entity based upon C (bar 37-38), echoing the thirds relation identified in Section 1 (Fig. 1.5). The transformational basis of the sequential passage in bars 38-43, is T1 (transposition up a semitone), which can be derived from the process outlined in Fig. 1.4 by taking each second node on the network and invoking the inverse operation, T11. T1 and T11, however, are particularly relevant to Section 3 as suggested in Fig. 1.6 below, where the relevant segments have been labelled in terms of T1 transforms. This process overlays the fact that the chord progressions parallel those of Section 1.

12. Given the substantial sections of *HL* devoted to root progressions and root identification, this focus upon root might be deemed to be inspired by Schoenberg's own theory.

	Section 3	Section 1 transform	Section 3 Region	Section 1 Region
Subsection 1	bars 46-51	T1(bars 7-12)	F	E
	bars 52-53	bars 13-14	E	E
Subsection 2	bars 54-59	bars 15-21	F	F
	bars 60-61	bar 22	F	F
Subsection 3	bars 63-67	T1(bar 23-27)	F	E
	bars 68-70	cadential	E	E

Fig. 1.6: *Natur*, transformational relations between Sections 1 and 3

These two analytical perspectives of the harmony of *Natur* offer distinct views: Schoenberg's regional view preserves the tonal centre-based model which is aligned with a hierarchical view of harmony, while transformational analysis points to transposition operations (which suggest a sense of the 'serial') that neutralise the significance of regional articulation. There is common ground between the two in that they both demonstrate Schoenberg's strict adherence to scale degree as an indicator of regional membership,[13] and his own interest in the relationship between harmonic and motivic coherence, epitomised by recurring transformations of (or references to) harmonic events. In this way both models point to aspects of Schoenberg's approach to harmonic organisation in the atonal works.

C) *The post-tonal perspective*

i) Segmentation

The process of segmentation must initially address what kind of investigation the analysis will be, in order to determine what information will be required. The harmonic analysis pointed to the diatonic character of the work, and in particular that it is based on triadic harmonies. Some of the chord progressions, although triadic, were deemed to be difficult to classify through traditional means. It therefore seems appropriate to examine Section 1 from the viewpoint of its chord successions, in order to determine how diatonic those chord progressions are from a pc-set perspective - or, in other words, how each succession might relate to or deviate from the interval patterning of the diatonic scale. The segmentation in Section 1 has therefore focused on the sets produced by consecutive chords, and a group has been constructed which exclusively shows

13. The transformational analysis emphasises the elements within Schoenberg's regional view that to some extent disable that 'hierarchy', presenting the transformation (transposition itself) as the alternative structuring principle.

consecutive chords in Section 1 (see the table which forms Examples 1.6 and 1.7, Vol. 2, listing in the first column all the groups which are used in the segmentation).[14]

However, the pc-set analysis is not devoted exclusively to describing successive chords. Given the predominant role played by motivic material, it is also appropriate to pose the question of how the melodic and harmonic parameters interact from a pc-set point of view. For example the recurrence of pc-set 4-2 (which constitutes the opening theme), and its placement in a pc-set or generic hierarchy, are of analytical interest. The segmentation of Section 2, which is less homophonic than Section 1, is more focused upon motivic and linear collections of notes, partly because the pitch-class turnover is significantly higher (see the higher cardinalities of the 'total content' sets in the second page of Example 1.6), and therefore such linear distributions reflect the way in which the chromatic scale has been partitioned more clearly. Nevertheless, where possible, the 'total content' segmentations have been included and span a similar temporal segmentation as do the successive chord segments in Section 1.

Section 3, predominantly a recall of Section 1 amid the scalar, 'liquidated' α forms described above, and the alternations of the E major tonic with its Neapolitan region, offers further opportunity to compare and assess the interactions of the pc-sets suggested by the diatonic scales with the more unusual sets (and their derivatives) which can be found elsewhere in the work. As will be shown, generic theory is particularly adept at capturing such interactions, and it will be useful to examine how the diatonic scalar elements interact with other melodic segments (some of which have been recalled from Section 1) and the diatonic triadic context.

The segmentation of the texture of the song into pc-sets is shown in Example 1.5 (Vol. 2).[15] Examples 1.6 and 1.7 show the main genera (i.e. the 'top three') articulated by each of the groups, in the context of the four genera systems in the 'before reduction' and 'after reduction' states. Finally, Examples 1.11 to 1.13 show the reduced matrices for Sections 1 to 3.

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14. The groups and their contents are accessible in the software by choosing 'Database' from the menu, then 'List Groups' from the sub-menu. The window shows a list of all the groups addressed in the study, ordered initially by work. It is possible to scroll down to find Op. 8 No. 1.

15. The reader is referred to the *Set Manager* software in order to generate a full set complex graph.

ii) The generic analysis

Section 1

A precursory examination of the K* intersection function shows that there is no perfect genus for the 26 sets of Section 1 amongst the 21,528 genera which the database includes (see Example 1.8, Vol. 2).[16] In terms of hits, the K* complex of 9-11 (complement of the set of the major triad, 3-11) hits on 26 of the 27 sets, but the fact that it has 156 members (75% of all sets) suggests that it lacks precision in modelling the pc-set distribution of the segmentation. In a similar manner, the set combinations which produce the highest Squos have insufficient hits (two or three) to warrant being regarded as significant genera in the context of this matrix (which, after all, comprises 27 sets).[17] Nevertheless, the function draws attention to combinations 7-35/3-11 and 7-35/3-7 which have the comparatively high Squos of 0.1646 and 0.1455. These combinations are comprised of three sets – 7-35, 3-11 and 3-7 – which recur as progenitors in the generic profiles which follow. 7-35 features prominently in the K*/Kd genera system, while 3-7 and 3-11 are the progenitors of the genus which dominates the Fortean interpretation (G12). This – is a

In fact, all four generic systems illustrated in Examples 1.6 and 1.7 agree that the first section is dominated by diatonic genera of distinct types: in the Forte system the diatonic genera are represented by G12 and G11 (G11 is eliminated in the reduced table), the Parks IV genera system highlights IC5 with IC2 in second place, while the other three systems agree that genera based on 7-35 occupy first place in the Squo reckonings.[18] Alternative genera are, however, required to 'complete' the substantial 27-set matrix as shown in the summary results of the reduced tables. In Fortean genera, G10, the 'atonal-tonal' genus and G4, the 'augmented genus' accommodate this requirement, and together the three genera account for 25 of the 27 sets (93%). In contrast to the structure of G4 (effectively the Kh complex of the augmented triad), the hybridity of G10 is less easy to conceptualise. The term 'atonal-tonal'(one of two genera which are given this alias) makes

16. This can be demonstrated in the user interface of *Set Manager* by choosing the 'button': 'K* Intersect' at the bottom of the Genus screen (with the 'Section 1' group loaded).

17. The top Squo is 0.1852, which is scored by four combinations: 6-20/7-35, 6-20/6-30, 6-20/6-33 and 6-20/6-35. The term, 'sufficient', used in the text, refers to the context of the segmentation. Thus, if a segmentation only included 3 sets and these sets were all hit by a genus with small cardinality, then this would obviously provide a useful characterisation of the segmentation. In this case the fact that 2 or 3 sets out of 27 exhaust an (admittedly small) genus does not represent a very useful contribution to the generic profile of the segmentation.

18. It should be recalled that the Parks-based 7-35+ genus differs from that of the K*/Kd 7-35 (i.e. Kennett's Kd complex) in that the former includes the sets which are not proper sub- or super-sets of 7-35, but which are Z-related.

reference to its basis in the intersection of the Kh complexes of 3-4 and 3-11 respectively. But, as is evident here, and will be further suggested by some of the comparisons of genera systems in the discussions below, there is a sense in which this characterisation is at the same time too broad (in that it attempts to characterise both atonal and tonal sets) and too restricted (in that it encompasses neither category sufficiently). This obscures the meaning of the term 'atonal-tonal'.

Moreover, returning to the case in hand and the first section of *Natur*, the two sets which stand outside the three top ranking genera in Forte's classification are those of the main theme, sets 4-2 and 6-1, and their structural importance is not well depicted by the Fortean system which describes them as singletons of G6 and G7 respectively to complete the reduced matrix. Although Forte's system does offer a single genus which would account for these sets (G5 or 'chroma'), it is well down the Squo listing for this segmentation. The generic profile, outside the dominance of G12 offered by the Fortean system, is therefore rather 'split', requiring four further genera to make up the profile.

The same could be said of the K*/Kd genera system,[19] spreading the generic profile across seven genera (see Example 1.11, Vol. 2), although this is perhaps understandable in a system encompassing 208 genera. This system does, however, emphasise 7-21,[20] which embeds 6-Z19, 6-20, 6-Z44 and 6-15 - all of which underlie some of the more signficant chord successions in the section. The fact that the 7-21 genus figures in the top three genera of the reduced matrix indicates its signficance within the section: its Difquo with the genus of the diatonic scale, 7-35, is a substantial 0.602, whereas its Difquo with the 6-Z19/Z44 genus is 0.004, suggesting they are very close in terms of their contents. Like the Fortean system the reduced matrix separates 4-2 and 6-1, which is not intuitively ideal.[21]

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19. This interpretation is based on data produced by turning the adjustment feature 'off'. See Chapter 4 for a discussion of this feature in respect of Kennett's adjustment of the Squo formula for Kd complexes.

20. The K* complex around 7-21 is in fifth place in the Squos before reduction with 13 hits, and third place in terms of the revised Squos upon reduction (three hits are retained in the reduced profile).

21. The problem is not the fact that the two are separated in the reduced genera *per se*. It is rather that neither form part of the predominating genera. Therefore, the fact that they are intrinsically linked in the segmentation context (one links with the other motivically) suggests that a convincing generic profile should at least be able to depict the link. Were one a member of the predominating diatonic genera, then one might say the other represents a modification of that genus of pc-sets, realised in the music by a form of variation or harmonic enhancement.

Although the Parks IV system is in accord with the others, placing the IC5 genus in first place and indeed the IC2 in second place, its Squo scores are substantially lower than the Forte and PGS, and its reduced matrix has not been considered here.

The role of the PGS in capturing and bringing together the more significant genera from the other systems is therefore evident, and the differences between the two diatonic genera (7-35+ and the larger G12) are brought into focus. The latter has a much higher count of hits in this segmentation, partly due to the large number of pentads, hexads and heptads in the segmentation itself. It therefore produces a slightly higher Squo, and in the reduced table it absorbs all of the hits of 7-35+, suggesting that it is the more appropriate genus. So dominant are the diatonic type genera that the other genera do not figure in the top three places in the 'before reduction' table of Example 1.6. This illustrates the importance of reduction, in that removing the sets which can be understoond in terms of the diatonic genera from the reckoning, it allows genera which might account for the sets which are clearly not diatonic, to 'come through'. Therefore, in the reduced table, it is clear that there are two other influences: that of the signature genus (6-Z19/44) and that of the chromatic genus. The final two sets have been absorbed into the extended tonal genus based on scalar constructs 7-35, 7-32 and 7-34.

The breakdown of Section 1 into subsections is consistent with this classification. The diatonic genera predominate through Subsections 1 and 2, with the 'chroma' genus (G5) and the 6-Z19/44 genus playing minor roles. The third subsection offers some evidence to the contrary, however, in that the K*/Kd genera system promotes genera such as those based on 6-20 (the hexatonic) and 7-21 (indicative of the 6-Z19/Z44 genus) over the diatonic sets when the Squos are considered (see the 'before reduction' table in Example 1.6). The K* complex of 7-21 out-scores G12 which holds first place in the PGS (well ahead of the 6-Z19/44 genus), offering an indication that this 'alternative' scale gains a signficant influence in the subsection which recalls and expands the opening phrase. The grouping which isolates the consecutive chord progressions throughout Section 1 also emphasises 7-21 in the K*/Kd genera system. Here, however, understandably, in terms of its Squo it lies second to the 7-35 genus, and its score is also 'behind' that of the G12 genus (see the PGS in Example 1.7). Therefore, although the chord progressions are predominantly derived from diatonic genera, a number of them have a non-diatonic generic disposition, which is captured by the genus of the K* complex of 7-21.

Section 2

In the same way as the query of the K* intersection genera system anticipated the importance of the diatonic genera for Section 1, a precursory examination of its portrayal of Section 2 shows the importance of chromatic segments (see Example 1.9, Vol.2). Once again, there is no 'perfect genus' which would include all of the sets of the segmentation of Section 2, the nearest being 3-2 which hits on 25 of the 29 sets (hardly surprising given its 158 members). The top Squo belongs to a partitioning of the chromatic hexad, 6-1 – the intersection of 6-1 and 6-7 (Genus 6-1/6-7), which the segmentation hits on four of its six members. Although in itself this is not particularly useful, it can be seen that chromatic segments punctuate the top parts of both orderings (by hits and by Squos) of the list. The K*/Kd genera system confirms the importance of these sets, in that it positions 6-7, 7-1 and 7-2 (which both embed 6-1) in the top three positions before reduction (see Example 1.12 which can be reconciled with Example 1.6).

Forte's genera system concurs with this, positioning the 'chroma' genus (G5) as the most important genus (with 12 hits), and the 'semi-chroma' (G6) in second place, while in the reduced matrix, the 'whole-tone' genus (with 6 hits) and three other genera supplement these genera to complete the matrix. Apart from the importance of the two chroma-type genera, this paints a somewhat inconclusive picture. The reduction offered by the PGS provides some clarity, with the segmentation being predominantly split between the Parks chromatic genus and the 'diatonal' G12, with the remaining sets picked up by 6-Z19/44, and the whole-tone 4-21 genus. The internal dynamics of these genera can be gauged by examining the segmentation by subsection. In Subsection 1 the generic profile depicts the diatonic harmonies and gestures of bars 33 and 34, represented by total content sets such as 5-31, 7-26 as well as linear sets 5-24 and 6-22 (the melodic content of the bass line), in contrast with the more chromatic sets of the upper lines - set 4-5, 6-1 and 4-2. In Subsection 2, the sequential tropes are based on total content segments (revealing 8-8 and 9-4) and so belong to the chromatic genus,[22] whereas the upper parts, most notably those of the vocal line in bars 39-43 (6-Z11, 8-27), form the key representatives of the diatonic-type genus.

22. One could conjecture that the chromatic genus, based on the relationship between ic1 and the set's cardinality, is more suitable here, as it includes chromatic segments 3-1, 4-1 etc., but also sets like 5-7, 6-7, 7-7, 8-8, and 9-4 which characteristically consist of two chromatic segments separated by a larger interval.

Section 3

The segmentation of Section 3, taken as a whole, comprises some 48 sets, and as might be expected with larger matrices, the generic profiling is somewhat inconclusive. The tally of K* intersections (see Example 1.10) shows that there is no genus amongst its domain which contains all sets in the segmentation: the maximum number of hits are those of 3-4 and 3-7, of which each has 42 hits, yet the Squos are not particularly high. The maximum Squos are achieved by the intersection of 6-20 (the hexatonic) and 4-21 (in which five of the seven sets are part of the segmentation). Although this obviously represents too few hits to be of significance, these sets, alongside 7-21 and 7-35 which are also prominent in the upper part of the table, figure in the generic profiling which follows.

The reduced generic profile of the K*/Kd genera system offers two dominant genera (6-Z26 and 5-23) which account for 30 of the 48 sets) and a third (5-27) which accounts for four further sets (see Example 1.7). However, the remaining 14 sets in the matrix are split between nine other genera, confirming a lack of clear profile.

The fact that 6-Z26 and 5-23 have a strong 'diatonic quality' (both are embedded by 7-35, and 5-23 is embedded by the sets of the minor scales, 7-34 and 7-32 as well) is reflected in the Parks IV system (in which the most diatonic genus IC5 is in first place), while the PGS places the diatonic system in second position to the complex around 4-17/19 (see Examples 1.6 and 1.7). Like the K* complex of 7-21, this genus is similar to the signature genus (6-Z19/44) which figures less highly in the Squo ranking in this segmentation (the Difquo between the 6-Z19/44 and 4-17/19 genera is 0.092). On reduction, the genus based on the whole-tone tetrad (4-21+) becomes prominent, alongside the chromatic genus, and together these four genera constitute the most succinct profile available from the genera systems used in the current study.

The generic profiles of the groups which represent the subsections offer a more detailed view of this (with few discrepancies). Subsection 1 is clearly more strongly diatonic, with the prominence of G11/12 in the Fortean model, IC5 in the Parks IV system and 7-35 in the K*/Kd genera. The PGS also highlights the prominence of the major scale through the 7-35+ genus (over and above Forte's G12, the hits of which it includes) but poses the 4-17/19 genus in first place (in agreement with the way in which it depicted the complete section). The rationale behind this can be elucidated by tracing how the classifications are reflected by the segments (pc-sets) in the music. Obviously the scalar figures, such as at bar 46 or 52, imprint a strong diatonic character on the passage, imposing their presence not only on the total content of the bars with which these figures are associated, but also on segments such as at the beginnings of bar 48 (set 7-35) and bar 52 (set 8-23). However, while sets 8-26 (bars 49 and 50), 9-7 (second part of bar 48) and 9-11 (bar 47) also belong to the diatonic 7-35+ genus, they are also part of the 4-17/19 genus which captures other non-diatonic elements such as the set of the vocal line which spans the phrase, set 6-15 (which in turn recalls a chordal progression in Section 1) and that of the inner melody in bars 46-48 (set 7-26). This genus also includes the passages involving scalar figures which are not based on the major or minor scale (8-19 in bar 47, and 9-8 in bar 51) and thus represents an intermediary between the diatonic genus (7-35+) and the signature genus (6-Z19/44) which is less prominent here than in other sections.

There is universal agreement amongst all genera systems on the pre-eminence of the respective chromatic genera over the diatonic in the second subsection (5-1 leading the Squo scores in the K*/Kd genera system), offering a useful view of the way in which corresponding subsections of Section 1 and Section 3 contrast with each other.

A comparison of the genera systems in respect of the final subsection presents an element of conflict (see Example 1.14). Three of the four systems emphasise their respective whole-tone genera, whereas Forte's system positions G4 (the 'augmented' genus) and G10 (the 'atonal-tonal' genus) as the main genera (with 'whole-tone' G2 in a distant fifth position).[23] Although the Squo scores are significantly higher than those of the Parks IV and PGS systems, the process of comparing the reduced matrix with the texture reveals a somewhat unsatisfactory mix of the 'augmented' (G4) and the hybrid G10 (atonal-tonal). For example, when examining bars 68-70, we find that Forte's system would separate 4-21 (G2) from 7-33 (G4) and from 6-9 (G10), whereas the Parks IV system (and indeed the PGS) would capture these three sets under a single genus.[24]

The K*/Kd genera system promotes a whole-tone genus on the basis of the whole-tone scale (set 6-35). But its eminence is undermined by the relatively small number of hits, centred on bars 68-70. The larger genus based on the tetradal whole-tone segment (4-21) used in the PGS has

23. It should be noted that the segmentation of Subsection 3 of Section 3 in *Natur* provided an example of the difficulties inherent in Forte's use of his own system. If one were to use the definitions provided in Forte 1988a (rather than the model of the examples he provides) and use the cardinality of the genera in calculating the Squos that he proposes then G10 would be 'higher placed' than G4 (see Chapter 4: 96).

24. IC2 and 4-21+ respectively. Moreover, Kennett 1998b demonstrates some inherent problems with G4 given its small size in relation to other genera in the system.

significantly more hits and can be deemed to encapsulate the extension of the overtly whole-tone sets of bars 68-70 to the preceding passage (within Subsection 3), such as the total content of bars 62-63 (8-19), the E major/F♯ major chord progression in bars 63-64, (6-33) and even the total content of bars 66-67 (7-23). This genus therefore aptly captures more clearly the anticipation of overtly whole-tone-based material (bars 68-70) in the bars which precede it. The reduced graph shows the associated prominence of the diatonic genus (7-35+) through the scalar figures epitomised by 6-32, and the total content set, 5-27 in bar 66.

The postlude suggests, perhaps, a surprising result in that the PGS proclaims the diminished-seventh genus in the top position, by a significant margin. This is supported to some degree by the K*/Kd genera system (in which two of the top three sets are complementary to octatonic hexads, while the other, 6-27, is actually an octatonic hexad) and also by the Parks IV system, with its placement of the IC3 genus (with an equally high Squo) in first place. The unusual feature is the fact that this genus has not appeared in the work to this point, and that the Forte system does not support this observation, preferring a diatonic reading (i.e. G3, Forte's 'diminished' genus, is in third place).

On examination of the music it is clear that the diminished segments are in the main focused on the passage through bars 75-76, although other segments (notably 8-27 and 9-11 in bars 72-73) are also part of this genus. The diatonic genera fail to out-perform the diminished-seventh because of the lack of truly diatonic segments - larger segments such as 9-11 hit both diatonic and diminished genera, suggesting that the passage in bars 75-76 projects its (well defined) harmonic species on the remainder of the section.

iii) Summary

The detail of what has gone before has been necessitated by the objective of determining an unequivocal characterisation of the genera of pc-sets suggested by the pitch-class content of *Natur*. The strategy has been to develop and propose an alternative genera system which uses the most convincing genera of the existing systems, by using *Set Manager* to establish a 'level playing field', and manage the comparison of systems. Fig. 1.7 (below), provides a summary of the generic character of the *Lied*'s pc-set content, by subsection.

Section	Key Genera	Alternative	Supporting Genera
Section 1	**G12 (dia-tonal)**	**7-35+ (diatonic)**	**Chromatic** **6-Z19/44 (signature)**
Section 1 Subsection 1	G10 (atonal-tonal)	7-35+ (diatonic)	G12 (dia-tonal) Chromatic 6-Z19/44 (signature)
Section 1 Subsection 2	7-35+ (diatonic)		G12
Section 1 Subsection 3	7-35+ (diatonic)	7-21 (from the K* complex) G4 (augmented)	Octatonic 6-Z19/44 (signature)
Section 2	**Chromatic**	**G5 (chroma)**	**G12 (dia-tonal)** **6-Z19/44 (signature genus)**
Section 2 Subsection 1	Chromatic	G5 (chroma)	G12 (dia-tonal) 4-21+ (whole-tone tetrad)
Section 2 Subsection 2	Chromatic		6-Z19/44 (signature) Octatonic
Section 3	**4-19/17 (atonal)**	**G10 (atonal-tonal)**	**G12 (dia-tonal)** **4-21+ (whole-tone)**
Section 3 Subsection 1	4-19/17 (atonal)		7-35+ (diatonic) 4-21+ (whole-tone tetrad)
Section 3 Subsection 2	Chromatic	G7 (chroma-dia)	4-19/17 (atonal) G12 (dia-tonal)
Section 3 Subsection 3	4-21+ (whole-tone tetrad)	6-35+ (whole-tone hexad)	4-19/17 (atonal) 7-35+ (diatonic)
Postlude	Diminished		G12 (dia-tonal)

Fig. 1.7: *Natur*, summary of genera

Thus, the predominanting diatonic genera of the first part of Section 1 are challenged in the third subsection by the 6-Z19/44 signature genus (particularly in the form of the Kd complex of their combined superset, 7-21) the presence of which had been hinted at in Subsection 1. The contrapuntal texture of Section 2 poses a further generic challenge to the diatonic-based sets of Section 1, whereby the chromatic genera prevail. However, the harmonic species of these textures is best represented by the chromatic genera based on intervallic content, as defined by Parks,[25] thereby including sets constructed of two chromatic segments separated by a larger interval alongside the more intuitively chromatic pc-sets. The diatonic and signature genera are evident in Section 2 as well, although their status is not as high as the chromatic genus in either subsection. In the recapitulatory Section 3, where one might have expected a return to the diatonic basis of Section 1, the diatonic genera are out-scored by the 4-19/17 genus, which itself represents a mediating construct between the diatonic genus and the signature genus. In the final subsection, the generic analysis reflects the influence of whole-tone constructs (based on the

25. And usefully used to characterise Debussy's use of the chromatic sets.

whole-tone tetrad). In the postlude, the diminished-seventh genus assumes prominence for the first time in the work, although the 'dia-tonal' G12 is in support.

D) Conclusions

The generic analysis underlines the strange mix of traditional and progressive characteristics that the other two perspectives have highlighted. The tri-partite form which includes a 'recapitulation', the prevalence of thematic variation or sequence (in Section 2), and the continual presence of the diatonic genera (despite the deviations of Sections 2 and 3), are all elements which suggest a strong sense of conservatism relating *Natur* to the legacy of Wagner and, perhaps more strongly, Strauß. However, the perspectives have also highlighted elements which are more progressive: the replacement of dominant function with the Neapolitan scale degree is characterised as part of an extended tonality in the context of the theory of regions, while the overall regional structure is outlined in microcosm by the chord progressions of the opening. This harmonic coherence is supported by the developing variations of the *Grundgestalt*, many of which can be successfully portrayed using the tools suggested by *FMC*. Finally, the pc-set analysis, in the context of generic theory, has presented clear evidence of the emergent new sets which would characterise Schoenberg's modernist period, and indeed that of his pupils.

The degree to which this mixture of the conservative and the progressive might be deemed expressive of the text of *Natur* is perhaps more difficult to answer, but the following narrative, drawing on the outputs of the theory-based analysis, is proposed.

Let us assume for the moment that the *Grundgestalt* represents *Natur* itself, presented in the simple monody (muted trumpet) at the outset (as well as 'on cue', at the beginning of the postlude). Its appearance at the opening demonstrates the inherent symmetrical form, represented by the inversion operation that returns the melody to its beginning without pitch-class repetition. The unusual chromatic chord progressions which set the opening line of text (*Nacht fliesst in Tag und Tag in Nacht)* offer a contrast to the more-diatonic progressions in the second subsection, counter-balanced by the regional focus: the home key represented by chromatic, less 'functional' chord progressions, the Neapolitan region represented by more conventional, functional progressions. Schoenberg seems to use this contrast to distinguish the immutable, mysterious successions of day and night (which mark our existence) from the much more consequential 'progressive' growth of 'brook to river', (and even death as the consequence of life).

The syncopated rhythms and cleverly woven polyphony (based on the variation of the α motif) of the first part of the second section appear to provide a musical illustration of the *Geist* and struggle which 'pour like a spring into the world', in constrast to the more philosophical tone of the first section (while still relating *Geist* to the movement latent within *Bach, Strom* and *Meer* through the rhythmic motif). But this effect is surely enhanced by the dominance of the chromatic genus in this section which constrasts the diatonic genera (and conservativism) of Section 1. *Jeder Geist* is subtly linked to 'Nature' through developing variations of the *Grundgestalt*, whereby the *Geist* continues (sustained in the bass part) through '*was du erlebst, hab' ich erlebt*' to the end of the section. In the final section the *Grundgestalt* returns, but not in monodic or homophonic vein as in Section 1, but rather in the maturity of its polyphonic presentation from Section 2, now somewhat broadened, and joined by a new variant in which its characteristic intervals and rhythms have succumbed to shimmering semiquaver scalar patterns. Although it is possessed of the formal nuance of a recapitulation, the proliferation of α variants is just one of several differences. The region of the first subsection is, after all, the Neapolitan (substituting for the tonic), and the diatonic genus of Section 1 has given way to a predominating genus of much more exotic pedigree (4-19/17). These factors provide a spectacular illustration of the central theme which is established in line 9 (at the outset of the section), *All' sind wir eines Baums Getrieb.* Taking the metaphor a further step, it is *this* harmonic world which Schoenberg has reserved to represent his overall viewpoint - extended harmony in which Neapolitan and tonic can be quickly switched (without the 'fuss' of a transitional passage), supplemented by a profoundly new harmonic species around which the pitch content is organised. This is perhaps more subtle than the invoking of the neutrality of the whole-tone genus in the final phrase that, perhaps too obviously, represents the ultimate union of nature and death.

Analysis 2: Op. 6 No. 1, *Traumleben*

The *Niederschrift* for *Traumleben* bears the same date as that of *Natur*, 18 December, 1903. Although there are technical similarities, specifically the use of the same same dual keys as noted earlier, the text and mood of the two vary considerably. Julius Hart's text is a love poem, and its sensuousness and intimacy represent a stark contrast to the philosophical, organicist tone of *Natur*.

This work has been the subject of two significant studies, by Cone and Wintle.[1] The content of the latter is primarily concerned with interpreting the *Lied* from the viewpoint of *HL*, although traces of Schenkerian theory, and some atonal theory, can also be detected in Wintle's viewpoint. The current study will adopt a more polarised approach to these theoretical models, using Wintle's article as a basis.[2]

A) *Form and motif*

The *Lied* may be divided into parts as shown in the table in Fig. 2.1, while Example 2.1 in Vol. 2 attempts to capture the correspondences between phrases.

Section	Bars	Text		Musical function
Phrase 1	1-4	Line 1	a	opening antecedent period
Phrase 2	5-9	Line 2	b	opening consequent period
Phrase 3	10-14	Line 3	b'	varied repeat of consequent
Phrase 4	15-19	Line 4	c	extended cadence to Phrase 3
Piano interlude	19-21			
Phrase 5	21-25	Line 5	a	recall of antecedent (with harmonic variation)
Phrase 6	26-31	Line 6	b	recall of consequent period (extended)
Piano postlude	31-35			

Fig. 2.1: *Traumleben*, phrase structure

The score is read from left to right, and new lines represent a section which corresponds to a previous section (indented to the appropriate position). With the exception of Phrase 3 (which does not finish with a cadence articulated by a chordal progression) and the piano interlude, each phrase ends with a cadence to an E major chord. Cone notes that the roots of each of the chords

1. See Cone 1974 and Wintle 1980.
2. See Wintle 1980. He addresses the Schenkerian interpretation of the initial phrase, while the issue of combinatoriality is frequently alluded to within the discussion. Wintle's approach is one of integration of analytical techniques with a view to establishing a single interpretation that underlines the conservatism of Schoenberg's harmony, while the current study seeks to establish the theoretical distinctions which demonstrate the historical context in contrast with one another.

which prepare each cadence are those which form the opening four notes of the melody (B, A, F and C – the F major triad with an added B♮) which forms the 'characteristic sonority' of the work.

The graph in Example 2.1 presents a broad picture of the correspondences aligned paradigmatically, and further details such as the similarity between the accompaniment of bar 3 to that of bar 16, have been annotated in the score. The graph emphasises the structural significance of the consequent phrase, the first three bars of which remain unvaried in the two repetitions. Variation occurs, rather, in the respective conclusions of the phrase, presenting distinct and contrasting cadence figures: the cadences to E major in Phrases 2 and 6 suggest finality, whereas that of Phrase 3 is a partial close which leads into the ensuing phrase. It would appear that there is no semantic association of the text with the three instances of this phrase, nor in respect of the other main 'recall', that of Phrase 1 in Phrase 5.

This would suggest, therefore, movement away from the *leitmotivic* treatment of motif (sequences, transpositions, thematic motifs) that could be identified to some degree in *Natur*. In *Traumleben*, the motivic structure appears to be of rather more modest proportions although, as argued below, developing variation is still in evidence.

The graph in Example 2.2 therefore attempts to show in detail a number of motivic connections between the four (broadly defined) phrase-segments. They are representative of the minute motivic cells which Schoenberg himself uses in *FMC* and *MI* in order to illustrate motivic connectedness, and therefore illustrate the way in which *Traumleben* demonstrates his technique of 'developing variation' and 'coherence' within the phrase segments. The motivic features cited here are clearly not at the level of the *Gestalt*-type motifs and subsequent motif-forms identified in *Natur* (and will be shown in *Verlassen*), the other songs written in mid-December 1903; rather, they resemble the motivic features which link motif-forms or *Gestalten* in those works.

Take, for example, the motif which has been labelled 'w' in the example. This motivic feature originally occurs at the top of the RH of the piano, perhaps distinguishable because it represents a movement away from the note B (which has remained constant in bar 1 and the first part of bar 2 amid the choromatic movement of the other parts) in this register. Its link with the B♯-D♯-C♯ figure in the vocal part (also labelled 'w') appears to be tenuous, as the intervallic pattern is different. However, its recurrence in a prominent position in the vocal part in bar 7 in inverted form is less tenuous. This version also occurs in the vocal part in Phrase 4 (bar 17-18) with a phraseological context and degree of prominence that clearly recalls its previous instance. Perhaps less obvious (in terms of prominence) is the instance in the inner parts of the piano in bar 24, although the interval pattern is clearly identical, and the same can be said for its instance within the piano texture at the beginning of the following bar (bar 25). These instances appear, however, within a string of three-note motifs which are associated (and are thus distinguishable) by their triplet pattern, although their interval sequence varies. The other interval pattern is a rising minor third followed by a falling semitone, and it is clear that the initial pattern within the phrase is the figure in bar 22. In turn this directly recalls a similar context, in Phrase 1, that of bar 2, finally suggesting that the so-called tenuous link between the two 'w' motif features in bar 2 is not tenuous after all. This offers a clear illustration of how motivic coherence can be clarified by other related material contexts which appear later in the work.

The other important observation from this graph is the importance of rhythmic motifs to the texture and ultimate motivic coherence of *Traumleben*. It should be noted that the one section which does not include the 'b' rhythmic motif is Phrase 5 (bars 21-25), which exemplifies a sense of recall in the more obvious manner suggested by the phrase structure in Example 2.1.

The cell-like scale of motivic coherence in *Traumleben* is therefore in stark contrast to the more thematic phrase structure of *Natur*, in which variation, as distinct from developing variation, played a more formal role. Thematic variation in this sense is absent from *Traumleben*, yet the motivic features illustrated here, while not exhaustive, underpin a sense of coherence which is also reliant on other factors as described below.

B) The harmonic perspective

A precursory examination of the harmony in *Traumleben*, suggests that like *Natur*, although E is clearly the main tonality of the work, its dominant is seldom articulated after the initial phrase, and is absent from structurally important moments such as cadence points. Chordal analysis (such as shown in Example 2.3) proposes elements which potentially replace the dominant in its tonic-defining role, such as the Neapolitan, and augmented-sixth formations which precede the tonic at cadence points. This illustrates Schoenberg's idea of the 'abbreviation of set patterns through omission of intermediate steps' which he discusses in *HL*, citing conventional formulas such as IV-V, the plagal cadence and the 'Neapolitan sixth where it goes directly to V' as being of the 'same sort of abbreviations' as he proposes in his Ex. 296,[3] the last two examples of which match the end of the phrase in bars 24-25 and the final cadence in bars 34-35, respectively.

i) Regional analysis

Example 2.3 (Vol. 2) shows a chordal analysis of the work. Like the other chordal analyses, the focus is upon functional classification within a limited set of harmonic regions, and in the main is in concurrence with Wintle, although it also offers some alternative classifications. Wintle's integrated approach demonstrates the importance of the role played by the *double entendre* of the seventh chord based on C, which recurs at structurally important points throughout. On the one hand it functions as the (secondary) dominant chord in the region of F major, while on the other it may be regarded as the conventional augmented-sixth chord of E major,[4] thus epitomising the E/F dichotomy. The *double entendre* is particularly apparent in the recapitulation of the opening theme (bars 21-25 – see Example 2.1 to compare with bars 1-4), where the 6-4 on F has established F as a locally stable tonal centre.[5] The ensuing secondary dominant on C (extended through bar 24) enhances the tonal determination of F as the newly realised tonal centre (where the corresponding harmony in the analogous instance was the ninth chord of E major), only to cadence directly to E major through its function in that region as the conventional augmented-sixth (as described by Wintle). This harmonic technique, and its structural context, is reminiscent of *Natur*, where the recapitulation of the first section (originally in E major) was also in F major, only for the harmony to cadence back to E major at the end of the first subsection.

An important distinction can be made at this point in that here the melody remains at the same pitch level as at the opening. In *Natur*, the complete texture was transposed up a semitone. The amalgamation of the notes which remain at the same pitch level with those which move up a semitone epitomise the extension to the the overall tonality, E major. Moreover, the chord which intervenes between the articulations of the 6-4 of F major is D♭, which stands in relation to F major in the same way as C (dominant of F) stands in relation to E major, and one can point to the cadence at the end of the phrase in bars 24-25 (noted above) to highlight a foregrounding of this relation.

3. Schoenberg 1978: 360. The discussion on abbreviated cadences starts on p. 359. Wintle also makes reference to this correspondence (Wintle 1980: 63).

4. The 'conventional progression' alluded to here would mean (in the region of E major) a C chord with A♯ (B♭) moving to a B chord which would be the dominant of E major.

5. See Wintle 1980: 62.

In the remaining bars of *Traumleben*, the harmonic graph highlights the alternations of E and F as competing tonal centres. It is in this section that the secondary dominant role of the seventh chord on C is used to support the F major region, whereas the overall tonality of E is supported by less conventional means, such as through the augmented-sixth type sonority which extends through bar 30 as the approach chord to E major in 31, and the Neapolitan which approaches it in the postlude. Each of these progressions is effected by chromatic voice-leading.

A number of other regions (within E's extended tonality) are suggested by 'ascending' progressions in which the root moves upwards a fourth. While the opening phrase is built around the only V-I progression in E major, the second phrase approaches E chromatically (through an augmented-sixth as described by Wintle). If we consider for a moment that the chromatic approach chord has its own *double entendre*; functioning as an A seventh chord (preceded by a ninth chord on E) it leads to the D minor chord at the beginning of bar 10 (which immediately follows the E major of bar 9). D minor is, after all, asserted on each of the three occasions that this *Gestalt* occurs. The graph traces the other instances where the region of D minor, represented by Schoenberg's classification 'flat mediant minor's five', seems influential.

One could argue, moreover, that both regions fall under the framework provided by Schoenberg in the *HL* description of the minor subdominant as a key source of chromaticism. The minor subdominant encapsulates the Neapolitan as its own natural submediant, while D minor would represent the minor subdominant's own minor subdominant. The opening passage therefore has been examined from the viewpoint of the minor subdominant in the example, in order to bring together the readings of the Neapolitan and the '♭mv'.

The technique of supporting alternative tonal centres by their conventional dominants, while using less conventional support for the the tonal centre on which the work begins and ends, was also found in *Natur*. In a sense this clarifies the nature of the extended tonality in these early works, whereby E's centricity as tonal centre is asserted by the fact that the *Lied* begins and finishes on E major, and is supported by the fact that most of the phrases cadence to E major. It is only at the beginning, however, that E major is 'defined' by its dominant B as one would expect in a tonal work – in the other phrases it is articulated by more chromatic means. E's harmonic regions, most notably the Neapolitan but also the minor subdominant and the supertonic's submediant (each of which are traced at various points in the harmonic graph), however, are affirmed by their own respective dominants, that is, by conventional means within their own tonal orbit. Schoenberg's theory depicts these as secondary dominants in the context of E major.

ii) Summary

The regional model is constructed on the basis of 'competing regions',[6] and as such it portrays conflict between the Neapolitan and the tonic regions, mediated to some degree by the subdominant minor in an extended tonality, in which the *double entendre* of C7 becomes a structural feature of the harmony and a symbol of the 'coherence' of the whole.

In any case, the similarities between the harmonic structure of *Natur* and *Traumleben* are clearly in evidence from this regional model, extending beyond the fact they are in the same key. Both works make structural use of the Neapolitan and have a regional structure in which the *double entendre* of the C chord epitomises the extended tonality, and both present the recall of their main theme in the region of the Neapolitan, before cadencing to E major.

C) *The post-tonal perspective*

Set theory, its limitations in what appears to be a triadic context notwithstanding, reveals a number of interesting relations in this song. The following analysis is in two parts: the first focuses on the more obvious pc-set relations which emerge from the segmentation process, and offers a precursory examination of the work from the viewpoint of traditional set theory, while the second examines how these segments relate to the pc-set genera. Example 2.4 (in Vol. 2) shows the segmentation.

i) The pc-set relations of *Traumleben*

Expanding on Cone's observation of the way in which the first four notes of the vocal part permeate the entire work, one can surmise from the pc-set analysis that this segment's pc-set (set 4-Z29) is indeed a significant 'atonal' set, and prevails within the sets of each of the phrases of the vocal part, as shown in the table in Fig. 2.2 (below). The embedding relations reveal no particular transformational process, the set is not replicated at a particular pitch level and the set forms are in general equally shared between inverted and non-inverted forms. It is thus its 'interval vector' which sustains the relation between the four-note segment and the remaining melodic material. One can also see that in the context of the entire work, 4-Z29 is a highly significant set, being K,

6. This is one of the metaphors adopted by Schoenberg in the *HL* discussions of the relationship between region and tonality. See Schoenberg 1978: 171.

K* or Kh related to 49 of the 57 non four-member sets (86%) which the analysis has examined. In terms of relationships, it is as close to a nexus set as can be found in *Traumleben*.[7]

Phrase	Bars	Set and Normal form	Embedding (Normal Forms)
Opening vocal line	1-4	7-26 [8,9,11,0,1,3,5]	T0, I8
Second phrase:	5-8	7-7 [7,8,9,10,1,2,3]	T10, I7
	5-9	8-9 [1,2,3,4,7,8,9,10]	T4, T10, I1, I7
Variation of second phrase	9-14	7-7 [7,8,9,10,1,2,3]	T10, I7
	13-14	6-Z39 [4,7,8,9,10,0]	I9
Fourth phrase	15-17	5-24 [3,4,6,8,10]	I3
	15-19	7-24 [1,2,3,4,6,8,10]	I1, I3
Reprise of opening	21-25	7-26 [8,9,11,0,1,3,5]	T0, I8
Varied reprise of 2nd phrase	26-30	6-Z36 [0,1,2,3,4,7]	I0
	26-31	7-2 [0,1,2,3,4,5,7]	I0

Fig. 2.2: *Traumleben*, the embedding of 4-Z29 (Cone's characteristic sonority) in the vocal phrases

The other element which recurs simultaneously with (and in the case of Phrase 4 'within') each phrase, is pc-set 4-2, which is familiar as the α motif in *Natur.*

Pc-set analysis allows Cone's four-note segment to be expanded to the 7-note set (7-26) formed by the whole of the first phrase.[8] Although it is not closely related to the other sets shown in Fig. 2.2, and its relations with the sets of the complete work could only be described as moderate, the set recurs linearly in a different context at the end of the work (see the piano part in bars 29 and 30), as well as harmonically at the point of recapitulation (Phrase 5, bars 21-23), alongside the melodic recall of the first phrase.

This particular observation confronts the harmonic analysis which found, in the recapitulation of the first phrase (bars 21-25), that although the pitch content of the vocal line was in general a direct recall of the opening phrase, the harmonic material had changed significantly (moving the tonal orientation from E major to F major). Set theory, on the other hand, proposes a strong correspondence: that the diatonic harmony of bars 20-23 comprises the same pcs as the complete opening melody, or rather that the pitch content of the melodic line has been rearranged to form the two chords (minus the motivic E♭) that are reiterated between bars 20 and 23. Taking this one step further, the set comprising the two chords in the preceding bar (bar 20) is 5-Z38 (that is

7. Forte, however, would prefer a nexus set to be a hexadal or a pentadal set rather than a tetradal set. (See Forte 1973: 113).

8. 7-26 contains only three semitone intervals within its interval vector, yet its lack of fourths and fifths (ic5) sets it apart from the diatonic sets.

the 7-26 without A and E♭), which is the set of the total content in bar 4 (i.e. the short piano link joining Phrase 1 and Phrase 2) that recurs in bar 9.

This clear instance of the structural interaction of the melodic and harmonic is not the only such case. The fourth phrase (bars 15-19) yields set 8-22 in the vocal line, and while one might consider its K-complex relations with the other melodic phrases (7-26, 9-5, and 7-2) to be somewhat nebulous, the fact that the set appears as the total content set in the penultimate bar of the work (bar 34) is signficant. Returning to bar 4, the total content set 5-Z38 may be combined with the chord across the bar (the E major - D minor juxtaposition) to produce set 7-19, which recurs (as the total content) in an inverted form two bars later (bar 7) encapsulating another 'difficult' tonal progression: a B♭ major chord followed by E major. The melodic phrase which dominates this second section (bars 5-9) forms set 8-9 and contains set 7-19 as the last part of the phrase.[9] This melodic phrase is echoed within the inner part of the piano in terms of their respective pc-sets in that they both form set 8-9, (c.f. Example 2.4), while imbrication (deriving from the set 7-7 in each instance) underlines this relation. To put this another way, the melody can be broken up into two chromatic segments, bars 5-6 forming set 3-1 and bars 7-8 (first beat) forming 4-1. In terms of transposition, these two stand in relation to one another in the same way as do the two melodic chromatic fragments in the piano part in bars 8-9.

One further type of pc-set relation which is prevalent in the analysis of atonal music and which appears, perhaps surprisingly, during the course of this song, is the instance of 'complement' relations within or around the segments. Thus, the fourth melodic phrase (excluding the final B) unfolds a form of 7-24 of which the first five notes form set 5-24. In bar 3, set 5-19 is immediately followed by its complement, 7-19, the reiterated segment 5-Z38 (bar 20) is preceded by its complement in the bass line (bars 15-20), the total content of bar 28 can be broken down into segment of 7-21 (of which 5-21 can be deduced on the first three beats), and in both bar 31 and 35, the final major triads (set 3-11) are preceded by a segment comprising 9-11.

Set relations therefore point to correspondences which might not be apparent through other means of analysis. On the other hand, there are segments which one might have expected to yield pc-set relations and yet do not. Wintle's analysis focused upon the chord progression in bars 13-15 in which the three-chord succession was explained through their common pcs, in the absence

9. This particular segment is repeated in bar 12, while the earlier 7-19 segment is repeated in bar 9, and at the end of the work in bar 31.

of any clear functional characterisation. The combination of the first two chords (c.f. Example 2.4) forms set 6-27, which is not embedded within (nor does it embed) many other significant sets in the work, with the exception of 4-Z29, Cone's 'characteristic sonority'. The same is true of set 7-31, the set of all three chords. 6-27 is in fact recalled in the chord progression between the fourth and fifth vocal phrases, but the reference is only transitory. The nature of these pc-sets (and indeed their role in the context of the octatonic collection) will be explored more fully in the pc-set genera analysis which follows.

Set theory therefore confirms Cone's observation in respect of the characteristic sonority, which was, after all, made on the grounds of a 'functional' reading. Wintle's point, that the exploration of the harmonic processes which give rise to the five cadence points forming the focus of Cone's 'characteristic sonority' reveals a complex mix of harmonic expansion and a changing basis for 'tonicity', is in fact underlined by analysis from this alternative viewpoint which combines harmonic with motivic and intervallic concerns.

ii) Pc-set genera

Examples 2.5 and 2.6 (Vol. 2) show how the phrases of *Traumleben* are depicted by the various genera systems. The first phrase illustrates some of the difficulties inherent in drawing conclusions about genera based on systems in isolation. The Fortean system prefers the G5 or 'chroma' genus (its 'most chromatic genus'), whereas the PGS portrays the passage as diatonic on the basis of the genus based on 7-35. Both G5 and the 7-35+ genera have approximately the same Squo score, although obviously if the two were put together, then the 7-35+ genus would draw ahead (because of its slightly higher Squo). However, when the sets are investigated, it is clear that each genus is based on a different group of sets, which suggests that their contexts in their respective genera systems are responsible for the seemingly confusing results (see Example 2.7). That is, 7-35+ is smaller than the corresponding diatonic set in Forte's system, G12, and so has a significantly higher Squo.[10]

The point is that both genera must be regarded as important, a point perhaps brought out by the Parks IV system which places the IC2 genus in first place and IC1 in second (although the IC5 genus is not one of the top three). The melody is presented in a diatonic context through sets 4-Z29 and 4-14, given the total content segments 4-21, 5-25, as well as the ubiquitous 3-11. On the

10. In fact, it is a little more complex than this, as these two genera are quite different - of the five sets which each hits, there are only three in common.

other hand, the total content of the first two bars (8-1/6-1), coupled with the inner parts in bar 3, the piano melody in bar 4 (4-1) and the bass line (6-8) combine to articulate a clear chromatic character. The case for the importance of the chromatic-type sets is enhanced by the K*/Kd genera system, which positions the complex around 6-8 (0,2,3,4,5,7) as the most significant genus. Although it has only 6 hits (still one more than either 7-35+ or G5), its Squo is significantly higher than that of the other genera systems, and it is closely followed by the chromatic segment 8-1 and the overtly diatonic 8-23 in equal second place.[11] The octatonic is prevalent as well (sets 4-Z29, 3-11, 5-25 belong to this and so does, characteristically, 5-19), and together these three elements mark out the pc-set generic dynamic for the work.

In respect of Phrase 2, the data from the genera systems table is more easily interpreted. The most interesting element is the dramatically high Squo and number of hits of the K* complex of 6-Z42 (the set of the second part of the melody) in the K*/Kd genera system. The abstract structure of its prime form (0,1,2,3,6,9) shows a structure in which the diminished-seventh tetrad has had the chromatic space between one of the thirds 'filled out'. As the diminished-seventh is the complement of the octatonic, its prominence points to the importance of both genera in the PGS (see Example 2.8), a point corroborated by the Parks IV system (in which IC3 is dominant). The latter also emphasises the signature genus, which holds third place. The comparatively low Squos of the Fortean system indicate that its genera are perhaps less suited to this segmentation than those of the other systems.

Phrase 3, for the larger part, is a repetition of Phrase 2, but it is clear that the prominence of the octatonic is further enhanced in the music, whereby the concluding passage comprising new material is made up of octatonic hexads (6-27 and 6-30) and the heptad (7-31). This is reflected in the tables by the large Squo in the PGS, and the advent of 8-28 itself into the top three sets in the K*/Kd genera (see Example 2.9). One can thus argue that the passage realises the implications of the previous phrase.

Phrase 4 illustrates the usefulness of being able to examine the different systems, although in this case a clear preference for the Fortean system is indicated by the fact that G12 (in third place in the Fortean system) is in top place in the PGS. The prominence of both IC2 and IC1 (and not IC5) in the Parks IV system underlines the preference for the Fortean system. The generic profile

11. 8-23 embeds 7-35 (the major scale), and is the pc-set of, for example, C major with the 'first sharp', F♯. Its diatonic character can be gauged by examining the Fortean genera (as well as the other genera systems) of its K* complex, by using the 'Explorer' screen in *Set Manager*.

conveyed by the Fortean system, which depicts the predominance of chromatic-type genera, is supported by the K*/Kd genera system, which places the K* complexes of 6-1 and 5-1 in first and second place. However, the hybrid character of the Fortean 'chroma-dia' genus, which includes octatonic-type sets 6-Z13, 6-27 and 6-30 (alongside even 5-10 and 7-31 not in this matrix) in its purview alongside chromatic segments such as 6-1, is somewhat unclear.

Likewise, the recapitulatory Phrase 5 shows that the Fortean system contains the more appropriate genera, and in this case the 'chroma' genus (G5) leads the 'semi-chroma' genus (G6), which holds a substantial 10 hits out of the 13 sets in the segmentation. Like G7, the nature of its hybridity (in this case the intersection of the Kh complex of sets 3-2 and 3-3, together with the application of Forte's Rule 2)[12] is intuitively unclear. In terms of Squo, the top members of the K*/Kd genera marginally out-perform the Forte system, and it is hardly surprising, given its domination of the vertical and horizontal segments of the texture, to find the K* complex of set 7-26 in third place.[13] Yet this genus is substantially different from G5, and the hits in this segmentation also differ, making it difficult to draw any conclusions regarding its structure. Moreover, the K*/Kd genera system shows that it is possible to find a genus which hits on all 14 sets, and also has a Squo which compares favourably with those of the listed genera systems (0.0926), 8-12. This, albeit rather large, genus (107 members) includes the complete octatonic genus,[14] but beyond this has little clear identity. The interpretation of the passage by means of the Fortean system has G5 and G6 collecting the non-diatonic sets (thus including 7-26, 7-28, 9-2 etc, but excluding 3-11, 4-27 and 5-Z38) with the remaining sets depicted as diatonic through G12 (see Example 2.11). It therefore, in a sense, splits the K*/Kd genera of 7-26 into the chromatic, the less chromatic (yet not diatonic) and the diatonic.

In the final subsection (which has been combined with the coda), all four genera systems agree that something new emerges, although the nature of that 'newness' is different for each system.

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12. It will be recalled that the rules for genus formation were insufficient as they had been defined in Forte 1988a, and a further rule (Rule 3) had to be constructed. See Chapter 4: 95.

13. If the segmentation had not included the preceding piano passage, 7-26 would of course occupy first place, as most of the sets are obviously embedded within either the horizontal or the vertical components of this passage (both of which aggregate independently to 7-26, as noted above). However, there are more independent indicators of its predominance, such as the K* with set 5-Z38 from the passage which precedes Phrase 5, and the fact that 7-26 is in R2Rp with 7-28 (see Example 2.6), the set of the piano link which immediately follows (bar 25).

14. This is with the exception, of course, of 8-28 itself, and (in terms of Park's octatonic genus) 6-Z29 which is included in Parks's octatonic by virtue of it being Z-related to 6-Z50, one of the octatonic hexads.

The Fortean system promotes G4, its augmented genus, which, because of its size and lack of 'hits' (only 5 out of 22), is not a clear preference. Similarly, the K*/Kd genera system proposes 6-20, the hexatonic set, as the single-progenitor genus with the highest Squo, with the same number of hits. It is interesting to note that the top 15 places in this table include progenitor sets such as 6-14, 6-Z19, 6-Z15, 7-21, 6-16, 7-6 (all with significant numbers of hits), which are indicative of the wider domain of the 6-Z19/44 genus, as well as the Kh complex of 3-12 (i.e. Forte's G4). These sets appear alongside the more overtly chromatic genera, 6-1, 5-1, 6-Z36 etc., which have fewer hits but substantial Squos. The Squos of the Parks IV system are substantially lower than those of the other genera systems and the top three are within 0.0030 of each other, underlining that it holds no particular predominant genera, while the PGS suggests that the 6-Z19/44 genus (which was prominent in *Natur*) take top position (see Example 2.12). In the light of its connection with both G4, 6-20, and a number of the set complexes highlighted by the Squos listed in Example 2.6, the 6-Z19/44 (or 'signature') genus (along with the PGS) has been preferred for this segment.

iii) A summary of the genera analysis

The list in Fig 2.3 shows the generic summary of *Traumleben.*

Section	Key Genera	Alternative	Supporting Genera
Phrase 1	G5 (chroma) *and* 7-35+ (diatonic)		Octatonic Chromatic
Phrase 2	Octatonic	6-Z42 (from K*/Kd genera)	6-Z19/44 (signature) Chromatic
Phrase 3	Octatonic		Chromatic 6-Z19/44 (signature)
Phrase 4	G5 (chroma)	7-26 (from K*/Kd genera)	G7 (dia-chroma) Octatonic
Phrase 5	G5 (chroma)	8-12 (from K*/Kd genera) 7-26 (from K*/Kd genera)	G6 (semi-chroma G12 (diatonic)
Phrase 6 and Coda	6-Z19/44 (signature)	7-21 (from K*/Kd genera)	Chromatic

Fig. 2.3: *Traumleben*, summary of genera

This summary emphasises the progressive nature of the genera and how each change in the 'key' genus is anticipated by a previous instance (either in the supporting genera or through the opening). It also suggests that, despite the fairly detailed discussions, the key genera form a relatively small group. Unlike in *Natur*, the preferred chromatic genera are those of Forte's system, which characteristically unfold a single 'chromatic segment'. The lack of support for diatonic genera except in the first phrase is surprising, given that recurring sets 7-26 and 5-Z38 are both members of G12, and the standard members of this genus, such as major/minor triad 3-11 and dominant-seventh 4-27, are regularly included in the segmentations.

On the other hand, the analysis argued that it was necessary to prefer different genera systems during a single work, and this may not appear an intuitively correct strategy in modelling a sufficient generic profile. However, an equally important purpose of the study is to compare the relative merits of the four genera systems, and at times it is highly likely that the alignment between segmentations and genera system will not be consistent. Indeed, an argument will be presented in the conclusion that the consideration of several genera systems is a necessary part of generic analysis that supports a view that is ultimately balanced. The contrasting characters of the systems presented here move some way to providing that balance.

The process of aligning segmentation with reduced matrix has nevertheless produced some clear indications of the nature of *Traumleben*'s pitch-class content and, together with the observations concerning the connection of segments through pc-set relations, provides a useful alternative to the motivic and harmonic analyses shown earlier.

D) Conclusions

The pc-set analysis (aside from the analysis of genera), in defining a set of connections between musical segments that cannot be easily presented through traditional motivic means, represents an extension of the motivic analysis, underpinning the sense of comprehensibility through coherence which Schoenberg sought (in his theoretical works) to uncover and (as a composer) sought to preserve. One could conjecture further that the lack of thematic motifs, which had been a feature of the larger-scale orchestral *Natur*, is to some degree compensated by the plethora of pc-set connections and the 'coherence' which they bring about.

On the other hand, the set analysis in general, and the pc-set generic analysis in particular, provides evidence that the work's surface is not strongly based on diatonic-type constructs, despite the fact that a tonal analysis was convincing and clearly supports an unambiguous tonal centre. It therefore refines the findings of the harmonic analysis by demonstrating that the harmonic species of the work can be classified as not only non-diatonic, but rather that it moves through different phases: diatonic/chromatic, octatonic, chromatic, before concluding with the signature genus, which is known to be linked with works which are inherently atonal.

The analyses of form and harmony do not suggest a clear model for interpreting the text of Hart's *Traumleben* beyond the perhaps obvious suggestion that the unusual use of tonality, the replacement of the dominant with augmented-sixth progressions, the use of chromatic voice-leading, and in particular the use of harmonic '*double entendres*', provide a suitable metaphor for the 'other-worldliness' of *Träume* and the dream-like quality of the love of which the poet speaks. Certainly the formal structure, with a strong sense of recaptulation (albeit with a new integrated harmonic context) in Phrase 5, does not have any obvious text-related parallel.

However, the exploratory nature of the techniques described here, and in particular the harmonic species identified by the analysis of pc-set genera, suggest a possible interpretation. In Phrase 2, the reference to 'spring-time' – suggestive of seasonal 'newness' – is supported by the octatonic genus. The phrase '*Aug verhüllt*' is set to the passage which is (from a pc-set viewpoint) most clearly 'octatonic', and the following chromatic-based passages (Phrase 4 and 5) could be deemed to provide a further technical subtext for the text, '*Du hast mit deiner Liebe all' meine Welt erfüllt*' ('With your love you have filled my world') extending all the more intensively through the following text, '*Die Welt scheint ganz gestorben, wir beide nur allein*' ('the world seems quite dead, only we two alone'). The genus of the 'signature' set was deemed to be predominant in the final phrase, and in terms of its potential for the development of harmonic species it rather aptly depicts the text of the final phrase '*Von Nachtgall'n umklungen, im blühenden Rosenhain*' ('surrounded by the nightingales' song in the blooming rose-garden'), with 6-Z19 itself forming the final set of the postlude.

Analysis 3: Op. 6 No. 4, *Verlassen*

The text of the Conradi poem '*Verlassen*' offers a complete antithesis to the springtime hope and optimism of *Traumleben* or, for that matter, the confidence and assurance suggested by the organicist tone of *Natur*, with its obsessive, almost melodramatic expression of brooding and recursive contemplation.

The Schoenberg setting matches the gloom of Conradi's text with a series of persistent ostinati, set in the low register of the piano in the key of E♭ minor, evoking a mood which is in stark contrast to that of *Natur* and *Traumleben*, although the proximity of composition (the *Niederschrift* is dated the following day) suggests the analytical investigation should seek some common ground with those works.

A) Form and motif

In order to aid referencing, *Verlassen* has been broken up into sections, in accordance with the phrase structure of the setting, which is very much in the tradition of 'through-composed' *Lieder*. Example 3.1 (Vol. 2) shows how the music aligns with the text, defining the sectional framework to which the analysis makes reference.

i) The phrase structure

The first section is marked by the piano part's ostinato figure, in which the slow, steady rising semitonal crotchet pattern of the LH is met with a figure based on descending semitones in the RH. The rhythmic quality of the figure combines triplet, syncopation and dotted rhythm, suggestive perhaps of a funeral march, and it is little surprise to find (in the text) that the narrator is venturing out into the grey fog of morning in a somewhat depressed state of mind. The vocal phrase begins with a free imitation of the descending semitones and concludes with a rising arpeggio figure, in which the triad outlined is a semitone distant from the main harmony articulated in the piano – a technique also used at the opening of *Traumleben*. The following consequent phrase is formed of a descending scale pattern.

Section 2, encompassing lines 3-7 of the text, is somewhat more extended. It begins with the piano interlude which forms a climactic anacrusis to the entry of the vocal part: an impassioned declamation of the torment of the narrator. The first two lines are set to a two-trope sequence, broadly based on the ostinato, although the tempo has quickened and the rising semitone crotchet pattern has become a quaver pattern. Line 5 of the text focuses on the word '*Verlassen*' ('Forsaken') from which the title of the poem is taken, and Schoenberg sets the vocal line to variants of the *Grundgestalt*. The piano's reiterations of the motif form a new ostinato pattern based on the tonics of the main harmonic constructs, D and E♭ (bars 15-18), through which Schoenberg builds a climax which set the words '*verruchte Schande*'. The cadence is effected largely through the liquidation of the reiterated *Grundgestalt*, the detail of which is discussed below.

The third section comprises recalls of previous phrases and *Gestalten*, paralleling the repetitions in the text: the piano connective in bars 23-4 offers a variant of bars 1 and 2; bars 25-26 which set line 8 of the text (a repeat of line 3) recall with minimal variation bars 9-10; and bars 27-29 are based on bars 3-4 in accordance with the repeat of line 1 in line 9. Nevertheless, the *Grundgestalt* undergoes a variation in which its character is somewhat changed – 'mist' (line 2) has now given way to the 'dawn light' (line 10), and this corresponds with the chromatic character of the earlier form of the *Grundgestalt*, giving way to a more diatonic form in bars 29-30.

Section 4 largely comprises a set of canonic repetitions of the opening antecedent phrase in the vocal part (bar 3-4), presented in a contrapuntal, imitative style, although the florid triplet patterns in the piano part create a texture which largely disguises (and contrasts) the character of the earlier version, despite the clear presence of the original motifs in each bar. This perhaps represents a musical depiction of the gradual increasing awareness on the part of the narrator of the world around him/her, in which the reality of the 'May morning' shows signs of stirring, while looming at the back of the mind of the narrator, despair remains.

The final section, resuming the tempo and mood of the opening, is preceded by yet another variant of the opening two-bar piano ostinato passage, while the penultimate line of text, in which the poet poses the rhetorical question of 'what the day has in store for him/her', is set to the same theme as the opening. In the final line, in contrast to the free independence (and symmetry) of descending scale in the original consequent phrase, the vocal line joins in the descending piano RH figure, and the final utterance of '*Verlassen*!' suggests resignation: submission to the obsessive ostinato which has been sustained by the piano from the first bar.

An interesting aspect of the compositional design is the way in which the piano sustains reiteration of ostinati (and their variants) throughout, with the voice occasionally joining in these themes in order to develop its own line while avoiding repetition which would render it an ostinato pattern itself, until the final bars where it seems to submit to the determined character of the piano's ostinati.

ii) The motivic structure

The RH piano part of bar 1 forms the *Grundgestalt* for *Verlassen.* Its characteristic 'motivic features' include a three-note descending chromatic segment (interrupted by a rising and falling fifth), and a set of distinctive rhythmic elements: the 'tied semiquaver' which forms an anacrusis to the LH, the triplet rhythm which contrasts with the main duple rhythm of the motif, and the syncopated conclusion.

The *Grundgestalt* and its motif features are shown in Fig 3.1, alongside three of its 'motif-forms' which, on account of the features held in common with the α motif-form (noted in the Figure), can be presented as deriving from the *Grundgestalt* through 'developing variation'.

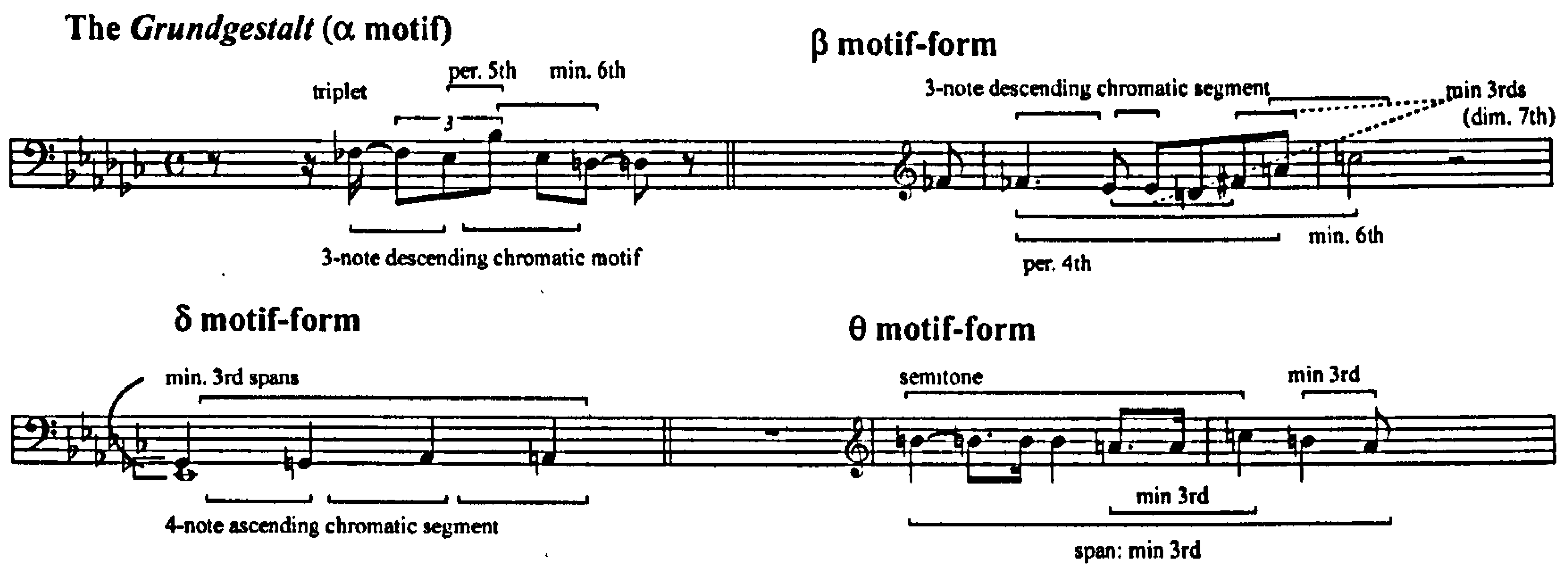

Fig. 3.1: *Verlassen*, motif-forms

Nevertheless, it is possible to argue that individually, the β, δ and θ motif-forms, along with α itself, sustain their own identity throughout the *Lied*, and that each therefore presents its own variants. To illustrate this view, a motivic plan of *Verlassen* is shown in Example 3.2 (Vol. 2), in which the score has been arranged so that each of the first four systems traces the instances and variants of each of the four main motif-forms. The other two systems provide a 'residue repository' in which material that does not obviously fall into these motivic categories has been placed. It is apparent from the lack of material in this 'repository' that the vast majority of notes in the work are involved in the articulation of one of the motif-forms. Nevertheless, this argument suggests that the developing variation in *Verlassen* is not complete in the sense that it would amalgamate all thematic material, as each of the four motifs retains its identity despite variation throughout the *Lied.*

iii) The *Grundgestalt*

Example 3.3 extracts the main variations of the α motif from Example 3.2, arranged to facilitate comparison. There are two motivic features that recur through most of the variations of the α motif: the triplet figure and the rising/falling fifth. For example, System (b) which shows the initial bars of the vocal part in Section 2, illustrates that notes 3-6 are derived from the shape (if not the intervals) of the triplet motif within the *Grundgestalt* (given the triplet rhythm and the characteristic fifth), although its beginning and conclusion differ from its model. Nevertheless, it can be argued that its first two notes (forming an ascending fifth) are brought into a relation with α through the later, more obvious reference. Similarly, it would be difficult to make a case for the ubiquitous descending semitone (between notes 7 and 9, marked in the example) to be termed a reference to those of the *Grundgestalt*, if it were not for the context of the triplet figure. This *Gestalt* therefore effectively becomes a new motif-form.

Systems (f) and (g) also represent new motif-forms brought about by the developing variation of the *Grundgestalt*. Some of the more closely related variants, such as in System (i), have changed the characteristic interval from a fifth to a sixth or fourth. The motif-form in System (f) comprises reiterations of the triplet figure alone, in which the rising interval is transformed. Five bars later the *Gestalt* shown in System (g) appears, also based on reiterations of the triplet figure, but incorporating a further variation whereby the triplet motif is truncated (the first note being omitted).

The on-going nature of its developing variations, together with a seemingly endless string of new motif-forms, confirms the status of the initial α motif as the *Lied's Grundgestalt*.

iv) Motif-form δ

One of the properties of the α motif, the descending three-note chromatic segment, is reflected immediately by the bass line which articulates a four-note rising chromatic segment, the characteristic feature of the δ motif. The span of the segment is a minor third, a reflection of the interval between its first note and the sustained bass note. As will be seen, this interval becomes a prominent element of the musical structure as shown in the analysis of pc-set genera. Although the δ motif might be considered to be part of the α motif with which it is initially associated, the fact that its repetitions and variants throughout the song occur independently of α, as well as the fact that its structure can be separately defined, both suggest that it be considered separately. The first significant variation occurs at bar 9, where the four-note pattern appears in rhythmic diminution (with a ratio of 2:1), while in bars 13-14, a variation consists of four minims, twice the duration of the original. Other variations incorporate elements from other motifs: for example at bar 31, δ is embedded twice within the triplet figure in the LH of the piano part (G♭-A♮ and A♮-C). Indeed, throughout Section 4, the δ motif spanning G♭-A♮ (the original pitch-class level) is reiterated simultaneously with other forms: C descending to A♮ in bar 33, and A♭ descending to F in bar 35.

Throughout the work, however, the δ motif-form is characterised by its ostinato role, frequently joined in this role by derivatives of the α motif.

v) Motif-forms β and θ

The initial vocal line (bars 2-4) also derives directly from the α motif, as the first three distinct pcs are a reiteration of the three-note descending semitone component from α (F♭, E♭, and D♮).[1] Its main characteristic is the arpeggio figure that follows, also derived from the *Grundgestalt* in combination with the δ motif (See Fig. 3.1 above). Indeed, the recall of this motif-form is varied in such a way as to incorporate the triplet rhythm from α, underlining the reference. However, the β motif-form is in general not developed further, and its later instances can be classified as repetitions (and occasionally variants) rather than developing variations (in terms of Schoenberg's distinction).[2] For example, in Section 4 where it is reiterated in canon four separate times through bars 31-34 (and again in bar 37), it recurs at the same pitch-class level (as indeed do the reiterations of δ which occur simultaneously), which is in fact the original pitch-class level from the opening.

Similarly, the θ motif is reiterated without variation and in fact retains its original harmonic context on each of its iterations. These motif-forms are therefore more obviously thematic elements which remain resistant to any process of developing variation.

v) Motif summary

An important observation of this discussion is the almost complete saturation of the texture with variants of the motif-forms, as illustrated in Example 3.2. Even the pitch material which cannot

1. If it were not for the reiteration of the motif in Section 4 (predominantly at the original pitch-class level) then the present analysis would simply classify it as a variant of α.

2. See Schoenberg 1967: 9. This distinction, and its sources in Schoenberg's writings, was discussed earlier, in Chapter 2.

be so classifed (and thus appears in the repository) can be traced back in some way to the *Grundgestalt*, as indicated on the example.

Yet it is clear that the recurrence of thematic motif-forms (even though their derivation from the *Grundgestalt* can be identified) with limited variation, and the use of canonic passages (as can be found in respect of β and δ in Section 3) which are effectively 'sequence' rather than developing variation, alludes to what Schoenberg regarded as an 'aesthetically inferior' technique to the developing variation he identified in Brahms.[3] This is not to say that developing variation does not play a part in *Verlassen* – clearly the relationship between *Grundgestalt* and other motif-forms is underpinned by developing variation. But the greater role played by variation as opposed to developing variation places *Verlassen* in a similar category to *Natur*: more conventional than *Traumleben*, despite the saturation of its texture with motivic allusion (which is also a feature of the Petrarch *Lieder* discussed below).

B) The harmonic perspective

Although the harmony of *Verlassen* is more resistant to conventional harmonic analysis than *Natur* and *Traumleben*, a harmonic interpretation has been attempted, and may be found below the score in Example 3.4 (Vol. 2). Unlike those of the other songs discussed in this chapter, the harmonies of *Verlassen* cannot be easily classified as successions of triads which can be connected to form a progression within a region. The following discussion will examine the sections, highlighting the main harmonies in each, in order to demonstrate that, in general, the regions are established through reiteration of their essential chords.

Section 1 provides an illustration of the nature of the harmonic process. The ostinato figure in the LH of the piano establishes that E♭ minor is the central tonal centre: E♭ is sustained in the bass line, and its third, G♭, is reiterated on the first beat of each bar. Indeed, a case could be made for E♭ minor being prolonged by the chromatic ascent from the third (G♭) leading to the implied fifth, which is never realised in the music – it is, rather, implied on the first beat of the next bar when the pattern is repeated. As noted earlier, the association of B♭ with E♭ is an integral feature of the α motif, and its interaction with the LH of the piano part provides a set of triadic identities which do not necessarily relate to E♭ minor.

3. See Schoenberg 1975: 77-78, discussed earlier (Chapter 2: 42).

The other two notes of the α motif, the Neapolitan F♭ and the leading-note D, also play a part in the harmonic process, and thus on each articulation of the ostinato the harmonies generated on the main beats are respectively E♭ minor, E♭ major, A♭ major, all of which are closely related to the region of E♭ minor, and the more distantly related D-A dyad. When it enters in bar 2-3, the vocal line interacts with the harmonic implication of this dyad, and a D major triad is outlined. The subsequent C♮ (bar 4) provides not only a seventh for the D chord (suggesting a ninth chord on E♭'s dominant, with omitted root), but also functions as the third for the A♭ chord (E♭'s subdominant).

The harmonic account of the α motif's note D is balanced to some degree by a similar reference to the other chromatic note of the *Grundgestalt*, the Neapolitan F♭, enharmonic of E♮. E may be regarded as the root of a chord articulated by the vocal line in the consequent phrase (bars 5-6) which outlines an E triad (noted in the example), in the same manner as the D triad was outlined in the antecedent. E major is supported to some degree on the first beat of bar 5 where E's dominant, B major (which may also be regarded as chord VI of E♭ minor), is articulated. This B major triad may also be regarded as an alternative resolution of the augmented-sixth suggested by the D-F♯-A-C♮ arpeggiation, outlined in the vocal line in bars 3-4.[4]

In this way, the pitch content of the α motif coheres with the vocal part through a harmonic model in which the E♭ ostinato acts as 'regional mediator'. E♭ relates to its Neapolitan F♭ through the region of the minor subdominant, A♭, (which itself plays a part in this passage through its recurrence on the third beat of the ostinato). D, on the other hand, belongs to the region of E♭'s dominant (B♭), although its classification is that of S/Tsm.

The juxtapositioning of D and E♭ becomes a principal harmonic issue in Section 2. The first phrase of the section (bars 9-10) can be understood harmonically from the viewpoint of the region of D minor (S/Tsm), representing a development of the implications of Section 1. When these two bars are repeated transposed down a minor third, the corresponding local region is that of B minor (the submediant minor of E♭ minor). Being the minor form of the submediant (and in terms of the chart of the regions somewhat more distant than the submediant major), this region

4. That is, the D and C would move chromatically to the consonance of D♯ and B respectively, rather than to a C♯.

does not include E♭ itself; instead its third is E♭'s leading-note D.[5] The following passage (bars 13-16) which sets the word '*Verlassen*', may be understood harmonically as a foregrounding of this characteristic, in that the B minor triad (its region well established by its dominant in bars 11 and 14) is juxtaposed with E♭ minor, driven by the D-E♭ succession in the LH of the piano part, above a pedal D♮. When the B itself is altered to B♭ in bar 17 as part of the reiterated pattern, the shift to the E♭ region is clear, as the established notes D and G♭ are both given immediate context as part of the altered dominant of E♭, and the remainder of this dramatic passage can be seen as a sustaining of that dominant. From the viewpoint of functional harmony the climactic B minor chords in the RH of the piano part from the end of bar 20 onwards, while making reference to the B minor region which dominated this section, are part of E♭ minor's dominant thirteenth.

The repetitions which dominate the third section invoke the regions of B minor and E♭ minor, before a chromatic shift (at the end of bar 28) takes the harmony to D♭, dominant of the relative major.[6] The directness of the progression from E♭ minor to D♭ recalls instances in *Traumleben* and *Natur* where a tonic triad moves directly to its ♭VII chord. When the G♭ (F♯) chord arrives in the following bar (bar 30), it is the minor mode which is invoked, perhaps in deference to the overall influence of D, as an important region in *Verlassen.*

In the first part of the fourth section, the β motif, reiterated in different registers at its original pitch level, is varied through a set of contrasting harmonic settings. The first two bars suggest the region of D major which, as has been observed, is implicit within the theme.[7] The progression

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5. A similar circumstance was noted in respect of the opening of *Natur*, when C minor immediately followed E major. The third of C minor becomes the leading note of E major, and the C minor chord's status of 'submediant' is placed into doubt.

6. In terms of chromaticism, the source for the notes of ♭VII would be (according to *HL*) the minor subdominant (the chord being the subdominant of the minor subdomiant). In terms of the regions, the region around ♭VII would be, in accordance with the description here, ♭MD (or ♭mv for the minor form of the region) as illustrated in the diagrams of *SFH* quoted above, and supported in *HL* to some degree by the description of modulation to the '5th circles of fifths' (See Schoenberg 1978: 277, Ex 211b), although the 'intermediary key' used for the major form of ♭VII is IV/IV (see Schoenberg 1978: 272-276, Ex. 210a).

7. This point is also made by Frisch (see Frisch 1993: 184) in his summary observations. His other proposal, that the D7 chord here is 'genuinely vagrant' on account of its lack of functional classification within either D major, or G major or anything else, requires perhaps an adaptation of Schoenberg's definition of vagrant chord. Vagrant for Schoenberg presupposes a background comprising a set of inter-relations between regions, in which context certain chords on account of their structure remain 'neutral' but are capable of progressing to more strongly determined chords. The D7 here is too strongly determined to be able to carry out the function of vagrant. The

from the tonic in D to chord ♭VII (bars 31-32) reiterates the progression in bars 28-29 in the region of E♭ minor (mentioned above). The region of the subdominant (also alluded to in Section 1) becomes a focus in the ensuing bars, with a strong sense of dominant-tonic in bars 34-35. The last part of the section includes a number of E♭ minor chords, and although Example 3.4 shows chordal designations in the context of E♭ minor, there is little in the way of unequivocal harmonic syntax to support it, until the assertion of D major at the conclusion of the section (bars 41-42), a sonority familiar from the vocal part of the opening, and the region suggested at the outset of the section.

The fifth section, comprising reprises of earlier material, begins with a juxtaposition of D major with E♭ minor in the first four bars, perhaps epitomising the conflict that has become a feature of the work (for example, c.f. bars 15-18). However, it is the E♭ minor region which prevails throughout the section, with the postlude including a conventional construct: a IV-V-I cadence.

In summary, the chordal analysis demonstrates that the harmonic suggestions and implications noted within the first section form the regional foci of later sections. The most obvious and pervasive of these is the region around D (both in major and minor form), but the other chords implied at the opening such as A♭ and B minor correspond with the other regions highlighted by the chordal analysis. B minor is also, of course, the relative minor of D major. The harmonic analysis serves to argue that in the absence of conventional harmonic syntaxes in the foreground the harmonic structure is governed by a set of regional interrelationships which are not so different from those of *Natur* (and even *Traumleben).* Although the harmonic means are different, at the level of region the relations between tonic and region are similar to those of *Natur* (where E is contrasted with Neapolitan F, and S/TSM E♭) and *Traumleben* (where E is contrasted with Neapolitan F).

C) *The post-tonal perspective*

Whatever view one might take of Frisch's scepticism regarding the appropriateness or even validity of pc-set analysis in the Op. 6 *Lieder*, one cannot ignore the importance of pc-set relations (which given the small cardinalities of the sets involved, would not necessarily require the full panoply of pc-set theory to unfold) offered by the opening bars, as shown below in Fig. 3.2.

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current argument is that from the composer's viewpoint the D7 does make reference to the region of D through a tonic's tendency towards its own subdominant.

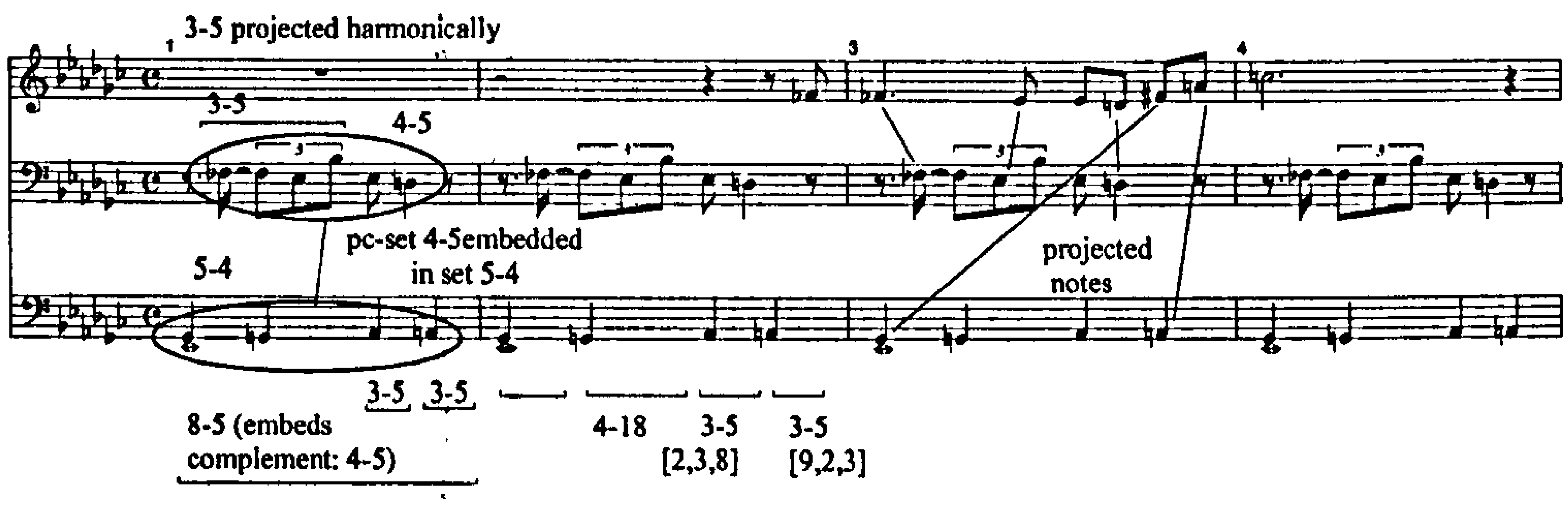

Fig. 3.2: *Verlassen*, pc-set relations at the opening

Here the principal tenets of set theory can be found in microcosm. The first three notes of the RH motif form set 3-5, a construct which is immediately 'verticalised' – made into a harmonic element – in the harmonies of both beats 3 and 4 (even though the notes are different). The latter point underlines the usefulness of inversional equivalence which pc-set theory adopts, and points to an intervallic symmetry within the phrase. The former point echoes an important characteristic of post-tonal music in that the distinction between harmonic and melodic pitch material becomes blurred, as suggested by the theoretical models which have been constructed to represent it.[8] Not only does the passage illustrate the connection between the vertical and horizontal, but it shows how one segment can be imbedded within another – thus the pitch-classes forming the RH piano part (motif α), are embedded within the LH (that is, if the pitch-classes of α were transposed up a fourth it would be seen that they constitute four of the five notes of the ostinato). The implication of this is a greater sense of cohesion between the two segments, and one could argue that the relationship adds to the coherence of the whole, in the sense intended by Schoenberg in respect of motivic relationships.

Finally, and perhaps a key point for addressing the concerns of Frisch,[9] there is the fact that the pc-set formed by the whole figure generates set 8-5, a set which might be described abstractly as two chromatic segments – one of 5 notes, one of thee notes – separated by a tone. The four notes which 'fill the gaps' in the chromatic space left by the set generate 4-5, which of course is distinguished in the texture (i.e. within 8-5) as the α motif. While not all of the 'complementation' observations noted in these analyses could be regarded as representing

8. For example, pitch-class set theory does not make any distinction between the two parameters. The point is interesting from the viewpoint of Straus's argument that prolongational models (which are constructed to represent tonal music), by contrast, require a distinction between melodic and harmonic elements. See Straus 1987.

9. See Frisch, 1993: 216, discussed earlier (see Chapter 4: 75).

intentional relationships on the part of the composer, it seems unlikely that in this instance the point would have escaped Schoenberg, given the structurally important position assigned to the ostinato, and the exposed manner in which it is presented.

i) Pc-set relations

Although it is difficult to identify a set of nexus sets of hexad type which would sufficiently cover the entire matrix, it is clear that octadal set 8-Z29 offers a signficant coverage of the matrix.[10] Moreover, this set occupies a central position, accounting for the total content of bars 42 and 43 just before the beginning of the final section, as well as the total content of the anacrusis to the voice entry in Section 2.

In the manner of the discussion of the opening, the following highlights some of the more obvious set relations in *Verlassen*, grouped into distinct types of set relation.

Set relations which illustrate melodic/harmonic integration

The strong relationship of melodic and harmonic pitch content, in terms of their pc-sets, extends well beyond the instances of 3-5 at the opening. For example, the beginning of the vocal line in Section 2 makes reference to the rhythm of the β motif. The reference is enhanced by the fact that the harmonic material articulates five of the notes (set 5-31) of the original β motif (6-Z45), while the sixth note, E♮, appears as the first note of the vocal part in bar 9.[11] The set formed by the concluding melody in Section 2 is set 6-Z39. At the beginning of the new section the set formed by the 'total content' in the first two beats of bar 25 is also set 6-Z39, transposed up a tone. The process is reversed in the final section, where the set formed by the total content of bars 42-43 (8-Z29) embeds the set of the melodic line in bars 44-45, set 7-28 at the same pc level.[12] In fact, set 8-Z29 has already appeared at the beginning of the fourth section. The table in Fig. 3.3 shows some of the other instances of this form of referencing.

10. The pc-set complex for *Verlassen* may be generated through *Set Manager*, by choosing 'List Groups' from the 'Database' drop-down menu, and selecting the 'group' entitled 'Opus 6 No 4', 'Whole work'. The button 'set-complex' will generate a 'Set Complex' window that enables the generation of the relevant set-complex matrix (choose 'Generate Complex').

11. It is clear that pc-set analysis is not needed to identify this instance. However, the issue is one proposed by set theory, and one in which pc-set analysis facilitates the accumulation of examples.

12. This device recalls a similar observation in *Traumleben*, in which the study observed that the recapitulation of the main theme was accompanied by two chords which aggregated to the untransposed pc-set of the main theme.

Set	'Total content' reference	Corresponding linear reference
6-Z12	Bar 5	Bar 8: RH Piano – anacrusis to vocal part in Section 2
6-Z39	Bar 25	Bars 19-21: main phrase in voice part
5-21	Bar 39	Bar 41-2: first 5 notes of the bass line in the piano part
6-Z24	Bar 50	Bars 50-51: first 8 notes of the RH piano.
6-Z19	Bar 5	Bars 14-17: vocal phrase -setting of the word '*Verlassen*'
4-5	Bar 44	Bar 44: piano LH – α motif

Fig. 3.3: *Verlassen*, further pc-set relations between harmonic and melodic segements

Set relations which extend 'developing variation'

The set of β (which is seldom varied) is hexadal set 6-Z45, complement of one of the octatonic hexads. Although it shares embedding relations with 8-Z29, its relationships with other sets are rather few. One of the more interesting is its embedding relation with 7-25, the set of the vocal line spanning the central part of the second section, which is brought further into focus by the repeat of β in Section 3 (bars 27-28) in a context which involves set 7-25, ultimately underlining the relationship between β and the vocal line in Section 2. The two occasions on which the β motif is varied (bars 36 and 38) reveal pc-sets 5-34 and 4-13 respectively, both of which are embedded within 6-Z45 – that is, although there is variation in the successive interval framework, the variants derive from the same original set.

Similarly, when the α motif undergoes variation (which can be defined in terms of the successive interval pattern) in bars 15-19, in various parts of the texture the pc-set of the original, 4-5, is maintained,[13] suggesting either that Schoenberg may have been aware of inversional equivalence, or that his sense of developing variation on this occasion may have invoked an intuition of its properties.

At the beginning of the vocal line in Section 2, the vocal melody has been classified as the result of the developing variations of the *Grundgestalt* (see System (b) in Example 3.3), although its pc-set is set 5-30, which shares no relations with other sets up to that point (including that of α). Its resemblence to the *Gestalt* at bars 24-6 has been noted (see System (e) in Example 3.3), and although its successive interval patterns differ, its pc-set 7-13 embeds 5-30. Another variant of α occurs shortly afterwards, midway through bar 28, (also shown in System (e) of Example 3.3), and

13. That is, the variants in this passage fall into two types. In the first the pc pattern is C-B-B♭-G♭ which also appears in a different ordering (C-B♭-G♭-B-B♭), and it relates to the original through the reordering of its notes., However, the form in the bass line in 18-19 comprises C♭-B♭-G♭-A - a different successive interval pattern, in which case the set is still 4-5 on account of pc-set theory invoking inversional equivalence.

its pc-set is 8-19 which embeds 7-13 (and therefore also 5-30),[14] underlying the support offered to the developing variation process by the embedding relations of the phrases' pc-sets.

It is clear that, whether by intention or intuition, these set relations identify further levels of coherence between phrases that are otherwise related through the developing variation process. This is not to argue that it forms a necessary part of the process, as it is clear from Schoenberg's own examples that it is not, but its instantiation in *Verlassen* appears to suggest an awareness of its possiblity and potential.

Set relations which illustrate complementation

The pc-set segmentation and analysis also suggests (as in the other works examined in this section) a number of complement relations between pc-sets. The beginning of this section noted how the opening related the *Grundgestalt* to its harmonic context in this regard. A similar instance occurs in the second part of bar 41, where 7-Z38 is the set of the 'total content' through beats 3 and 4, with the first five notes forming set 5-Z38. To underline the set-class integration of this passage, the seven-member set has been anticipated in the first part of the bar through its appearance a minor third higher, within the context of the set 8-4. Moreover, the 'Z correspondent' for 7-Z38 is 7-Z18, which appears as the set of the bass line, articulating the Schoenberg 'signature' set 6-Z44 through its first six notes. The passage, which was recalcitrant to analysis by conventional harmonic means, is revealed as amply homogeneous in terms of its interval structure. A final 'associated complement' can be found at the opening of the second section, where an articulation of 7-3 in the RH of the piano is followed by 5-3, which can be found as the melodic line of the RH piano part in bars 9-10.

A second type of complementation inherent in *Verlassen* is hexadal complementation, whereby a hexad is associated with its transposed complement. Both instances in *Verlassen* centre on the passage between the second and third sections, where the harmonic analysis was somewhat inconclusive. The predominance of β motifs in Section 3, each of which forms set 6-Z45, has been described elsewhere. That set's complement is set 6-Z23, which is formed by the 'total content' in the second half of bar 31, the upbeat to the new melodic line in the vocal part. This set does not recur at any other point in the *Lied*, and its instance here suggests a form of association with set 6-Z45.

14. One could also point out that the last six notes of this α variant form 6-16, which also contains 5-30.

A second juxtapositioning of a hexadal complementation is effected by the vocal line in bars 31-33. Its content can be described as 'picking out' fragments of the articulations of β and δ motifs in the piano part. Specifically, the first four notes appear to be doubling the δ articulations in the lower RH of the piano, the second two notes double the β articulation in the upper RH piano part, and the final two notes appear to derive from the upper LH piano part (which comprises another instance of δ). The resultant pc-set, 6-Z3, perhaps not surprisingly, does not closely relate to any other melodic sets, with the sole exception of that formed by the α variants at the end of the third section, which form set 6-Z36, complement of 6-Z3.

The detail of all pc-set relations alluded to in this section serves to underline that pc-set theory underpins much of the 'coherence' of *Verlassen*. At the very least, they provide evidence of the inherent interval-based structure of passages less conducive to harmonic analysis.

ii) Pc-set genera in *Verlassen*

The first section has been subjected to a fairly detailed segmentation, and the comparison of the Squos of the various genera are shown in the tables in Examples 3.6 and 3.7. One of the more surprising results of the generic analysis is the prominence of the octatonic genus over the chromatic genus in the PGS, an observation which is well supported by the Parks IV system and the K*/Kd genera system.[15] In terms of Squo it stands well above the scores achieved by other genera. This is supported to some degree by the Fortean system as well, in that G3, based on the Kh complex of the diminished triad,[16] ties in first place with G1 (which, described as 'atonal', is based on 3-5). Both these genera have more hits than the genera in top positions in the other systems, although the example in the K*/Kd genera system of the K* complex of 7-4 (complement of 5-4 which appears in the segmentation) is interesting in that it appears to have both a large number hits (14) and a high Squo. A check on the K* intersection table reveals that this genus can be further refined (and the Squo increased) by citing the genus of the intersection of K*s between 7-4 and 9-5. Unfortunately, the four sets this excludes include the two melodic segments from the vocal part, and so supporting genera would be necessary.[17]

15. Note the difference between the two (which is reflected in the different number of hits). In Parks's 1989 octatonic genus, the basis of the octatonic genus in the PGS, the genus includes the Z-related sets, whereas the Kd complex obviously will not include these sets.

16. Recall that this genus is as near as the Fortean genera system gets to an octatonic genus.

17. Not that this is necessarily a problem, rather that the advantage of citing a single genus with both high Squo and a high number of hits is lost when one must introduce supporting genera.

Returning to the significance of the octatonic genus to this passage, it can be seen from the reduced table (Example 3.8, Vol. 2) that its main components in the segmentation are the harmonic sets which result from the interaction of parts, such as 4-18, 5-16, 5-19 and 6-Z49, but they also include more significant sets such as 3-5 (discussed above), and the set of the initial melody, 6-Z45 (classified as octatonic on the basis of its Z-correspondent, 6-Z23). The remaining sets are split between the diatonic 7-35+ genus (6-Z26 with its 5-24s, and 5-Z36) and the 6-Z19/44 genus which is characterised here by 5-4 and 4-5 (along with 6-Z19 as one of the 'total content' sets). The Fortean system, broadly viewed, agrees with this, although some of the detail suggests differences. The reduced matrix (also shown in Example 3.8, Vol. 2) is interesting in that there is a dead heat between the G1 and G3.[18] One pragmatic solution not considered in Chapter 4 would be to give the result to the atonal genus on the basis that it has the larger number of hits, and is therefore a closer match. This would of course lose the more interesting detail which the diminished-seventh genus reveals, and it would appear that the hybridity of the two is difficult to relate back to the segmentation. In general, however, the Squo scores of the Fortean genera system are not high enough to challenge the significance of the genera of the other systems, in particular the PGS, and the 'broad agreement' between G3 and the octatonic, and the G1 and the 6-Z19/44 in combination with the diatonic genera, will suffice.[19]

All genera systems are in agreement with the 'chromatic' character of the first part of Section 2: the Fortean system promotes G6, G7 and G5 in the first three places, the K*/Kd genera system shows 6-1 in top place (with 8-7 in second position) and the remaining systems give preference to

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Ultimately one would end up with a genera system of between two and five genera, ideally suited to this particular segmentation, but not generally applicable to other segmentations. For example, in this passage one could use successive queries of the K* intersection system to generate 7-4/9-5 (the K* of relevant sets to the passage) 4-Z29/9-12 (a very specific intersection genus of only 30 members, and a very high Squo in respect of this segmentation), and 4-28/8-25 (once again of a very specific character that is required to capture 6-Z45, the one remaining set). The discussions of genera in this study attempt, after all, to establish a consensus amongst all genera systems in order to support more general statements about the pc structure of the passage. The introduction of a genera system specifically tailored to the passage in question may not help in this objective.

18. This is despite the fact that various modifications were made to Forte's rules for intepretation as described in Chapter 4.

19. Comparison of the results of the hits in G3 with those of the octatonic genus reveals the inherent problem with the Fortean system – that a system based on trichords is not very discriminating when it comes to comparing hexads, and so most of the hexads appear in many genera, leaving trichords and tetrachords as the elements which are more determinate of generic identity. This observation might well have a bearing on the type of segmentation one should ideally use if one were to make exclusive use of the Fortean system, but here no *a priori* assumptions were made and in general it was decided to avoid fully imbricative segmentations.

Parks's chromatic genus. The PGS places the diminished-seventh genus (4-28+, complement of the octatonic genus), in second place, perhaps reflecting the third place scored in the K*/Kd genera system by set 6-Z42 (complement of 6-Z13, one of the octatonic hexads), with the 7-35+ diatonic genus in third position. This offers the most appropriate modelling of the passage (see Example 3.9, Vol. 2): the chromatic scalar segments in the RH of the piano part (encompasing sets 4-1, 6-1, 6-Z38 and 5-7) along with the linear sets of the upper parts (7-3, 5-3 and even 4-3) of the piano part, are contrasted with (1) the diminished-seventh-type sets which emerge, as in the previous section, from the total content harmonic segments (8-Z29, 8-10, and 6-Z13); and (2) the diatonic segments which consist of other total content segments (5-Z38, 5-26, 7-24) and the set of the first vocal phrase.

The consensus as regards the main genus can be extended to the segmentation of the second part of Section 2, with Fortean G3 corresponding with top-placed K*/Kd genera system genus 6-Z29,[20] IC3 which leads the Parks IV system, and the octatonic genus which leads the PGS. However, the Fortean system offers the most convincing model, given its high Squo, the large number of hits generated by G3 itself, and the fact that its top three genera cover 21 of the 24 sets in the segmentation. G3 therefore represents most of the sets in the section, with the atonal genus (G8) accounting for 8-4 of the vocal line, and 7-6 of the RH piano part. Nevertheless, two weaknesses remain – outside G3, the reduced matrix is somewhat spread amongst five other genera (see Example 3.10, Vol. 2), and the key set 4-5, indicative of the *Grundgestalt*, is captured as part of the whole tone G2, which seems intuitively misplaced.[21]

Section 3 finds the PGS out-scoring both the Fortean system and even the top-ranking K*/Kd genera, while the top three places cover 20 of the 22 sets in the complex. Example 3.11 (Vol. 2) shows the reduced matrix and illustrates that, yet again, the octatonic sets are the total content sets (especially in the passage from the middle of bar 26 to the middle of bar 28, coinciding with the recall of the opening material, the melody of which is octatonic as well), while the atonal tetrad genus (4-17/19) accounts for the remaining total content segments and the majority of

20. 6-Z29 is complement of 6-Z50, one of the octatonic hexadal subsets. They share a high number of ic3s, which underlines the relation with the diminished triad.

21. 4-5, set of the *Grundgestalt*, occurs on numerous occasions in this segment. Each of the phrases in which it occurs, is also captured by larger segments (which in turn generate other pc-sets in the model) - see for example bar 18 in the vocal part. This suggests that it could be omitted from the segmentation without concern that 'notes are being missed' by the segmentation. However, the clarity and frequency of its articulation (here and elsewhere in *Verlassen*) suggests that this would not be acceptable in a sufficient segmentation of the passage.

melodic segments in the passage, such as 7-13, 8-19 and 6-16 in the vocal line. The remaining linear segments such as 6-Z3 and 6-Z36 with which the section somewhat symmetrically begins and finishes, 4-5 (the α motif) and 5-5, are deemed chromatic.

This pattern applies also to Section 4, although it can be seen that the diminished-seventh genus (4-28+) has replaced the octatonic genus, to which it relates,[22] while the 4-17/19 genus remains in second position. This preference is supported by the K*/Kd system, and to some degree by the Fortean system in which G3 predominates. The majority of the 12 sets which hit on the diminished-seventh genus are those of the 'total content' segments, especially between bars 31 and 33. It also governs the recurrent articulations of β. The prominence of the 4-17/19 genus is largely due to the passage in the piano which follows the section proper, from bars 40- 41, and (if the sections had been demarked differently) would also take in the 8-Z29 which encapsulates the two bars that follow (42-43), marking the beginning of the final section. The emergence of the 'dia-tonal' G12 is interesting as well. It covers a number of the remaining total content segments such as 8-14, 6-32, 7-23, 7-29 etc., but also the linear 6-32 in the voice part, which spans the central part of the section, as well as the beginning of the following phrase, 6-25. It thus takes over the role of the atonal genus in the previous section.

In the final section, from the viewpoint of the PGS, it is the octatonic genus which prevails by some distance, and its importance is supported by the K*/Kd genera system (as was the case in the previous section, in respect of the diminished-seventh genus) and the Fortean system, which places its 'most-octatonic' genus, G3, in first place. The distribution of segments between the diatonic and octatonic is less clear than in other sections.

iii) A summary of the analysis of pc-set genera

Taking the entire work (in which there are 91 distinct pc-sets), it can be seen that the 4-28+ and octatonic genera prevail in first and second place (see Example 3.14, Vol. 2), as confirmed by the fact that G3 leads the Fortean system, IC3 leads the Parks IV system and that the 6-Z42 genus (complement of the octatonic hexad 6-Z13) leads the K*/Kd genera system. Fig. 3.4 below summarises this entire discussion, and it appears that genera theory offers a reasonably consistent view of the pitch-class language of *Verlassen*. Any intuitive idea that *Verlassen* is pervaded by

22. Recall that the diminished-seventh genus is complement-related to the octatonic genus, in that where the octatonic genus includes all sets that are embedded within or embed 8-28 (plus their 'Z' correspondents), the diminished-seventh genus includes all sets that embed or are embedded within 8-28's complementary set 4-28.

chromatic-type segments, suggested perhaps by the *Grundgestalt*, is thus demonstrably not correct outside Part 1 of Section 2; the harmonic lanugage is rather pervaded by either the diminished-seventh genus (with support from the Fortean G3) or its complement, the octatonic. The pc-set segments show a degree of chromatic and atonal involvement as well, with both types of genera providing a secondary influence in the central sections. The diatonic-type genera perform this role at the beginning and the conclusion.

Section	Key Genera	Alternative	Supporting Genera
Section 1	Octatonic		7-35+ (diatonic) 6-Z19/44 (signature)
Section 2 (Part 1)	Chromatic		4-28+ (diminished-seventh) G12 (dia-tonal)
Section 2 (Part 2)	G3 (diminished)	Octatonic	G7 (semi-chroma G8 (atonal)
Section 3	Octatonic		4-19/17 (atonal) 4-28+ (diminished-seventh) Chromatic
Section 4	4-28+ (diminished-seventh)		4-19/17 (atonal)
Section 5	Octatonic	G3	G12 (dia-tonal) 7-35/34/32 (extended diatonic)

Fig. 3.4: *Verlassen*, genera by section

In as much as the octatonic represents the complement of the diminished-seventh genus and is therefore closely related in intervallic terms (as opposed to closely related in terms of the Difquo)[23] the table depicts a fairly homogenous generic structure, which perhaps supports the overall sense of singularity in mood that pervades *Verlassen*.

D) Conclusions

The theoretical perspectives have revealed the opening *Gestalt* to epitomise the crossroads between twentieth-century modernism and nineteenth-century tradition. In respect of the former, the pc-set analysis demonstrates a coherent structure underpinned by referentiality and complementation. The Schoenbergian motivic analysis, on the other hand, illustrates its qualities as a *Grundgestalt* from which other motivic and thematic material grows, while the harmonic analysis argued that it sustains rather than prolongs E♭ minor in a pc-set environment which (according to generic theory) is overwhelmingly octatonic. Perhaps its clearest association with

23. The Difquo, representing a the difference between the *list* of sets which belong to each genus, suggests a considerable difference (0.507) between these genera.

the nineteenth-century tradition is the expressive quality which Schoenberg uses to depict a mood of gloom and foreboding that is appropriate to the text. Indeed, the *Grundgestalt* itself might be deemed a *Leitmotif* for the concept '*Verlassen*'.

The first part of the second section was considered sequential, yet this is hardly the tonally determined sequence of a Beethoven 'development' section. The rationale behind the regional focus on B minor in the second trope is somewhat unclear. A possible explanation, perhaps, is provided by the predominating genera – harmonic species based on the octatonic or diminished-seventh-related pc-sets. The second trope might therefore be regarded as transposition of the first down a minor third, a transformation which grows out of the pervading harmonic species of the music.

Nevertheless, as the section progresses, the oscillation between D and E♭ in the bass line (amid a sustained E♭ minor triad) takes centre stage, and a clearer sense of tonal direction develops, with the final assertion of E♭'s dominant coinciding with the dramatic conclusion of the section. At the same time, the reiterations of the *Grundgestalt* take on a more thematic aspect in the vocal line, assuming the role of text expression linking '*Verlassen*', '*Marterwort*' and the image '*verruchte Schande*'.

The recalls which underpin the structure of Section 3 (in deference to the recalls in the text) juxtapose musical segments which had not been joined in their previous instances. This suggests that these segments are underpinned by harmonic content which is autonomous and referential towards, rather than sequentially related to, the overall tonic.

The fourth section, in which the text suggests an increasing awareness on the part of the narrator of the environment around him/her, comprises the canonic successions of the β motif at its original pitch-class level amid further developing variations of the *Grundgestalt*. In the generic classification of a segmentation dominated by total content segments, the diminished-seventh-based genus was found to be predominant, underlining the effect of motif β (which is based on the diminished-seventh) on the passage.[24] Indeed, three of the four motif-forms can be identified with this genus through their structural use of ic3 (as illustrated in Fig. 3.1), and it is clear that as a

24. It is important to note that the pc-set of β (6-Z45) receives just one count in the Squo calculations. The contention here is that the diminished-seventh within the β motif has a significant effect on the section as a whole, beyond the motivic reiteration of β.

construct it underpins much of the contents of Sections 1 and 2 which are based on these motif-forms.

The final section and postlude refer, as does the text, back to the opening: the octatonic genus predominates, the *Grundgestalt* resumes its original state as does β, and E♭ minor is asserted (substantiated by a final 'V-I' cadence). The analysis of *Verlassen* thus presents a finely balanced mix of modernist compositional techniques with allusions to those of the past.

Analysis 4: Op. 6 No. 5, *Ghasel*

While the context of the Keller poem which Schoenberg chose for his next setting is a love scene, the images – the causal connection between the narrator and the bee through his beloved, the petals building the rose, allusion to the 'String of Life' (Line 6) – all point to the idea of organicism, reminiscent of the image portrayed by *Natur*.

Schoenberg's setting of the text is 'through-composed', with each couplet set to a musical phrase, some of which resemble the periods he defines in *FMC*, articulated by short piano interludes or linking passages. The regular pattern whereby a musical phrase sets a couplet is broken in the last four lines where the punctuation and semantics of Keller's text joins the last two couplets. The last four lines therefore follow a 1-2-1 pattern, which the musical phrase structure follows, in particular articulating the final phrase of the text as a distinct musical phrase. In order to assist referencing, the following analysis alludes to sections numbered 1-6 which broadly correspond with these musical phrases.

A) *The motivic structure*

A sufficient *Grundgestalt* can be found in the four-note opening bass monody (piano part, bars 1-2), the abstract form of which will be labelled the α motif. There are three characteristic features of the α motif: the semitonal successive interval structure, the span of a minor third and the two rhythmic motifs which pervade the texture of *Ghasel*. Example 4.1 (Vol. 2) shows its relationship with the recurrent motif-forms in terms of the motivic features it holds in common with these forms, as well as some of the other developing variations which are generated, underlining that the *Grundgestalt* can be connected with most melodic elements in the work. The instances of these motif-forms (indicated by Greek letters) and the motivic features (indicated by Roman letters) have been marked in a score with square brackets, in Example 4.2 in Vol. 2.

i) The β motif-form

Although the four-note semitonal interval pattern which appears in the *Grundgestalt* is reminiscent of the opening *Gestalt* of *Verlassen* (and it does indeed make a number of appearances in *Ghasel* – most notably in Section 4), it is a three-note semitonal segment (identified by the motivic feature 'x'), and a two-note semitonal pair (identified by the motivic feature 'v') that form the basis for the motif-form β and its subsequent variants. Motif-form β is essentially a phrase characterised by three elements, the three-note motivic feature 'x', the transposition of 'x' up a major third, and the concluding ascending semitonal pair 'y', which characteristically leads the phrase back to the note on which it started. Despite its inherent chromatic structure, a diatonic reading of the β phrase may be proposed which heralds elements which are echoed at other levels of the structure. The first and last notes form the tonic note of its initial tonal context and the following tri-tonal interval D♯-A suggests resolution to G♯ (or indeed G♮) alongside E, which duly follows. The final E leads back to F in the manner of a leading-note moving to tonic, and the G♮ represents the true supertonic.

The dissonant D♯ (altered leading-note) and the supertonic are the diatonic features which associate the β phrase with the following phrase in the vocal part (motif-form Σ) although, as Example 4.1 suggests, the two phrases hold a number of other elements in common as well. Motif-form θ, (see Example 4.1, Vol. 2) which also includes the characteristic features of α, appears to suggest an inversion of these scale degrees. In Section 1, Schoenberg presents these three motif-forms in three phrases in the manner of a fugal exposition whereby each new form is presented in counterpoint with the previous: the vocal part represents the first voice; the RH of the piano the second; and the LH, which enters with β in bar 6, represents the third.

Although β is recapitulated in bar 27, the Σ and θ forms do not appear at this point, although Σ appears in a rhythmically varied form in the vocal part in the preceding Section 4, and in the final two bars (bars 41-2) in a truncated form. The recapitulatory section (Section 5) has a contrapuntal dimension, however, with the counterpoint provided by β itself a fifth higher (bar 28). The central interval has been altered from a tritone to a perfect fourth, suggesting a kind of tonal alteration as one might expect of a dominant form,[1] while a further addition to its conclusion ensures that the phrase finishes on the note on which it started.[2] One could argue further that this addition realises the relationship between the two-note semitonal pair (motivic characteristic 'y') and the three-note chromatic segment (motivic characteristic 'x'), of which it is clearly a subset. The relationship between two β forms a fifth apart is echoed in the postlude, where the dominant form is unaltered and the 'correct' interval – the tritone – is restored.

1. See Schoenberg 1967: 21.
2. The additional note renders the conclusion of the phrase a direct variant (by means of inversion) of its beginning. Thus while making use of a primarily diatonic tool (the dominant version), this particular variant of β aggregates to the chromatic segment and ultimately neutralises the β phrase's diatonic attributes (i.e. the functional deployment of supertonic and leading note as means of defining the tonic).

The 'x' feature of the β motif is apparent at other points as well.[3] It introduces the recapitulation of β in bars 26-7 (RH piano part) and in a similar manner introduces the final phrase of the vocal part in bars 34-5. However, this instance is the middle trope of a sequence of 'x' features, each of which is in counterpoint with an inverted instance (starting on the same note) in the LH of the piano part. The starting notes are a major third apart, thus the three notes F-E♭ appear in bar 33, followed by their T8 version (D♭-B♮) in bar 34, while a further T8 version (A-G) in the vocal part in bar 35 completes the symmetrical cycle.[4] The final instance, which marks the final phrase in the vocal line, is in fact the beginning of a complete β motif-form, and had this been a 'normal' β motif this symmetry would have been continued (T4, the internal transformation of β being the inversion of T8). This instance, however, is a variant, and while there is a hint of the 'dominant form' from bar 28 discussed above, the preservation of this set of chromatic segments is not maintained.[5]

The symmetrical partitioning of the pitch-class octave with 'x' features however plays a role in the pitch content of the postlude. In the LH of the piano part, the expected concluding F♮ of the β phrase (bars 38-9) is delayed two bars. The second of these bars (bar 41) comprises the 'x' feature, which relates to the first three notes of this β phrase by T8 (as well as to the second three notes by T4) thus completing the symmetrical partitioning of the pitch-class octave. The first of these bars is effectively a retrograde of the content of the second (with an additional A♯ at the beginning, which adds a note to the chromatic segment, thus adding to a sense of recall of α). The process of retrograde within the bass line itself points to a similar use of the technique at the opening.

3. One could certainly consider these to be truncated β motifs, or 'x' features from the *Grundgestalt*. The former label would stress the fact that these *Gestalten* include a rhythmic aspect from β, the latter emphasises the derivation from the *Grundgestalt*. It is probably immaterial which label is used, the point being that all motifs relate to one another through the *Grundgestalt*.

4. The word 'symmetrical' here refers to the fact that transformation 'T8' (transposition up eight semitones - a minor sixth - or down four semitones - a major third) will move a group of pitch-classes back to the original set after three successive 'T8' transforms. Here Schoenberg uses two T8s to partition the 'pitch-class' octave with 'x' motif-forms. This echoes the internal structure of β itself, as β includes a T4 (inversion of T8) transformation as one of its own motivic features.

5. Note too that this phrase (bar 35) can also be regarded as a response to the piano part in bar 33, where the three-note descending chromatic figure could be construed as the beginning of a β form, which finds a delayed continuation in the vocal phrase.

ii) Motif δ and θ

The relationship of the δ motif-form (see Example 4.1) to the *Grundgestalt* is not immediately clear. Like the β phrase, the δ motif-form is a phrase which includes both the rhythmic motivic features of the *Grundgestalt*, and also makes use of the retrograde transformation, which was a feature of the first five bars in respect of α. Also like β, it has its own characteristic interval pattern which is scalar by nature, motivic feature 'w'. Its successive interval pattern is 2-1-2, which offers a diatonic contrast to the chromatic character of β.

The similarity in terms of the interaction of motifs and features between Section 1 and Section 2 is striking. Just as 'x' underpins β and pervades the texture in Section 1, 'w' underpins δ and can be found throughout Section 2. Just as β was subject to contrapuntal treatment in Section 1, δ appears in canon with itself in Section 2. Moreover, just as 'x' undergoes successive transposition (T4), so does 'w' at T5 (LH piano at bars 8-11). The second instance of 'w' is followed by its retrograde (bars 11-12), making reference to its original source in the same timbre in Section 1 (bars 4-6).

The δ which spans the first half of Section 2 gives way to the θ motif-form (the 'slow trill' melody) to which it relates through motivic feature 'b'. θ predominates in Section 3 to the background of a rhythmically augmented β section in the LH of the piano part (marked *hervortretend* in the score).[6] The oscillating pattern provided by the 'slow trill' of θ in a sense encapsulates the notion of 'retrograde' which can be identified with α and δ, and in this way might be regarded as a type of liquidation of phrase δ. Certainly the inverted content (in relation to motivic feature 'b') within the δ phrase (bars 9-10) coheres with the 'slow trill' of θ in the manner of a 'developing variation'.

Further examples of the instances of these motif-forms and their motivic features are shown in Example 4.2 in Vol. 2.

iii) Motif summary

Transformation processes, such as the symmetrical partitioning of the octave by motifs, motif-forms or motivic features, are not discussed by Schoenberg, nor indeed are the transpositions of motifs. Yet it is clear that the breaking down of phrases into motifs and motivic features in this *Lied* in the way Schoenberg has illustrated in his own analyses, reveals a degree of symmetrical

6. *hervortretend* means 'prominent' or 'to the fore'.

structuring of pitch content which challenges the more conventional diatonic transformation operations (such as the dominant form present in the canonic treatment of β in bars 27-28). The tension between the two processes, diatonic and symmetrical, is clearly evident in *Ghasel.*

While it is possible to question whether motifs and motivic connection can be analytically valid when the level of motivic feature might be as small as a 'slow trill', Example 4.1 suggests that such abstraction can, in certain contexts, underpin useful observations regarding the process of developing variation and the way such motivic features might be deemed to have evolved from the *Grundgestalt.*

B) The harmonic perspective

Although the texture of *Ghasel* appears to be the most simple of the four *Lieder* discussed in this section, the harmonies and their classification in terms of region has proved difficult, particularly in Section 5. Nevertheless, the following analysis (which refers to Example 4.2, Vol. 2) argues that *Ghasel* provides a good example of the character and properties of Schoenberg's notion of extended tonality.

i) Section 1

The monodic piano introduction is revealed in bar 2 to have introduced a 6-4 chord of F major, which on account of its appearance at the beginning and extended assertion at the end of the *Lied* can be deemed its overall tonal centre. In the opening section, the three successive instances of α designate three distinct harmonic movements: the first is a chromatic elaboration of the F chord; the second moves to F's relative minor, the submediant D minor, while the third (as part of the link passage in the piano) concludes on a seventh chord on D major (dominant of F's supertonic).

In bars 1-3, linear chromatic passages outline the chromatic space between the third and fifth of the F major triad (bar 1-2, bass part), the third and root (bar 3-4, voice part), and the root and seventh, returning to the root (bars 2-4 – the descent is in the voice in bar 2, and the ascent is in the RH piano, bar 3), as shown in Fig 4.1.

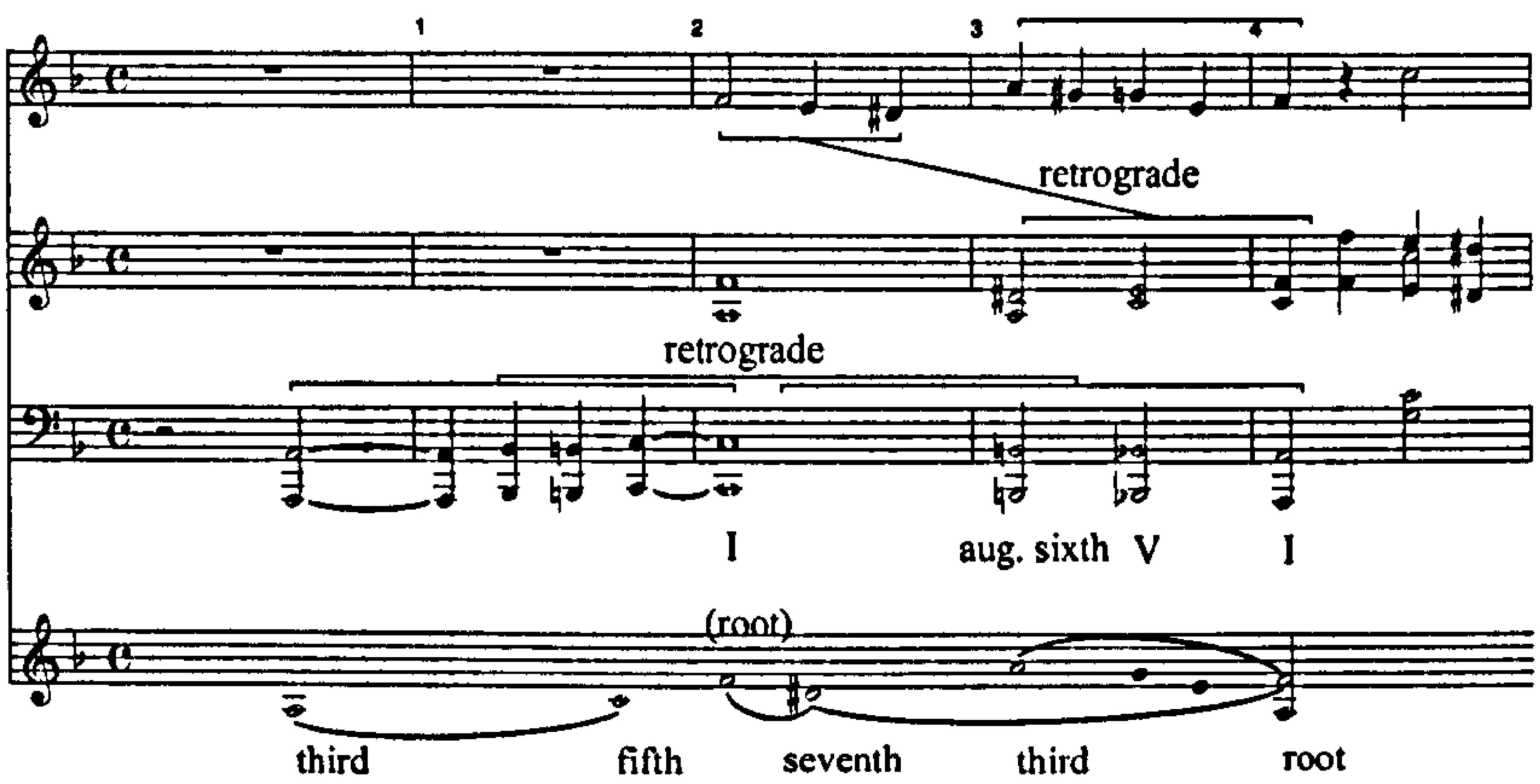

Fig. 4.1: *Ghasel*, bars 1-4, chromatic lines outlining F major

This chromatic linear elaboration of the F chord is a good example of the categoric difference between a Schenkerian prolongation and the kinds of elaboration which one might identify on a local level in this and other post-tonal works.[7] Schenkerian prolongation invokes the diminutions which Schenker defines (which in turn are based upon the conventions of strict counterpoint), and are demonstrably subordinated to an overall fundamental structure. Neither of these characteristics are discernible here.

In terms of the regional analysis, the first section also contains a reference to E minor, on account of the melodic D♯ which underpins the dominant of the 'indirect but remote' region of the leading-note (or supertonic's submediant minor - S/Tsm). The augmented-sixth at the beginning of bar 3 leads to E minor's dominant, but this B-D♯-A triad can also be seen as an anticipation of the more obvious dominant of E in bar 9. Thus, like *Traumleben* and *Natur*, *Ghasel's* opening section makes use of an extended tonality involving E and F major, although the overall context, unlike the earlier works, is F major.

The harmonic content of the second phrase moves in the direction of F's relative minor, D minor. Accordingly, taking the chromatic linear process of the initial bars a step further, the RH of the piano which repeats the β motif (bars 4-5) can be regarded as extending the F-D♯ chromatic segment to D♮ in an inner part (bar 5), thus immediately asserting the chromatic space between the third and root in terms of D minor (the harmonic direction of the passage). In a phrase representing another linear chromatic motion, the C♯ in the vocal line of bar 5 leads to D, asserting the local tonic, in the context of a VII^7–I progression.

7. Recall that the issue of prolongation in post-tonal works was discussed earlier. See Chapter 3: 58.

The third (and final) phrase of the opening section (bars 6-7) reiterates the move towards D through a cadence, although the final D major chord (at the beginning of bar 8) is a seventh chord (in a 6-4-3 position), sustaining a sense of harmonic instability into the new section. Motivically this passage is a reworking of the previous phrase, and in general the similarity extends to the harmonic progression, although the sense of D's dominant (albeit altered) is substantially stronger than earlier. Although this effectively destablises the tonic region, there is little attempt to stabilise any new region, and the seventh chord on the submediant (bar 8) points – in the manner of a secondary dominant – to the region of the supertonic.

ii) Section 2

The first part of the section delays any answer to the question of region posed by the conclusion to the previous section, interposing a B-D♯-A-C chord (which succeeds the D-F♯-A-C chord of bar 8 somewhat chromatically) that seems to refer back to the chord at the beginning of bar 3 in evoking a sense of E minor, the remote region of the supertonic's submediant minor.

One could argue that the melody drives the harmonic events in this passage, in that its oscillating 'slow trill' appears to pick out the seventh and root of each of these secondary dominants, as it does in respect of the G seventh chord when it appears in bars 12-13.[8] The chord successions emerge from a combination of chromatic voice-movement and sustaining of common tones (as illustrated in Fig. 4.2 below) which, until the emergence of the dominant region in bars 12-13, defy a categoric functional assignment in terms of F's regions.[9]

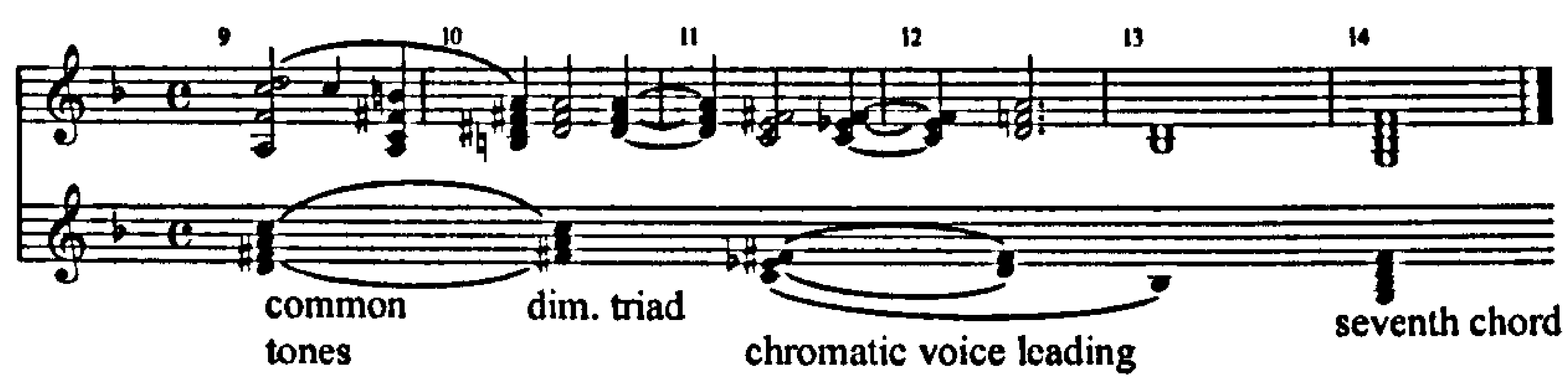

Fig. 4.2: *Ghasel*, Section 2, voice-leading

The bold return of β in the LH of the piano in bars15-19 offers another example of Schoenberg's description of the interaction of motif and harmony. The following example shows how the

8. An example, perhaps of Schoenberg's proposal 'The harmony is led as it were by the melody' (Schoenberg 1978: 285).

9. The pivotal use of the diminished-seventh in this way recalls the discussion in *HL* (see Schoenberg 1978: 267) where Schoenberg also notes the likely melodic derivation of such progressions as well as the problem of identification of roots.

motif interacts with the functional description of the harmony by representing the notes of the motifs which remain outside the functional description suggested by the Roman numerals as stemless crotchets. It is clear that all of these notes can be classed as chromatic passing or auxiliary (neighbour) notes which lead to or pass between the chordal constructs.[10]

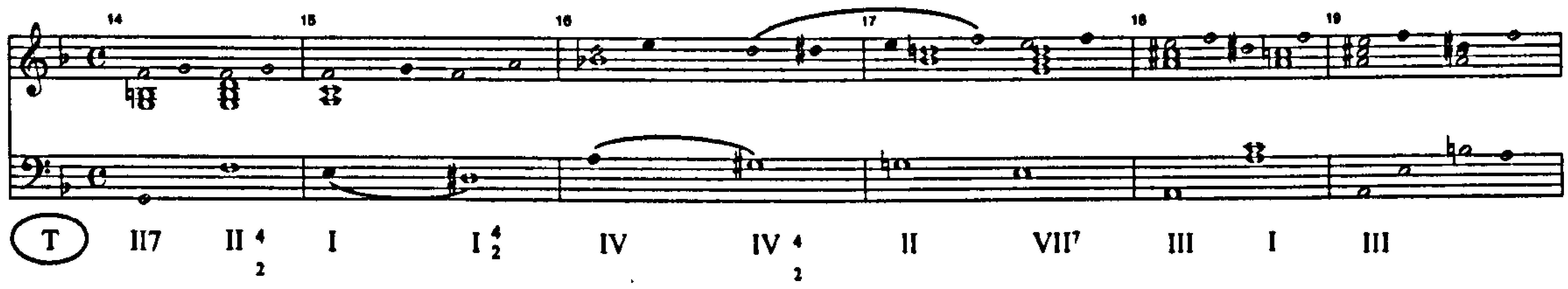

Fig. 4.3: *Ghasel,* interaction between harmony and motif

Thus, in bar 16 where the 6-4-2 chord built over F moves to the B♭/G minor sonority in bars 17-18, the voice-leading defers to the motivic concerns of the bass line, defying any rule that the seventh fall.[11] The subdominant and its relative minor are temporary goals and the section concludes with the mediant, A major, approached by a secondary dominant built on the leading-note.[12]

The association of D♯ with E and F in bars 17 and 19 (perhaps in response to their instance in the recall of β) is reordered in bars 19 and 20 to form an augmented-sixth which leads chromatically to the fifth of the A chord and the third of the C♯ minor chord respectively. The following bars, however, are most easily classified in terms of B, (S/Tm),[13] the region which stands a tritone distant from F, because this encapsulates within a single region the strength of the C♯ in the bass in bar 21 (supported by third, fifth and even seventh at the end of the bar), as well as the sense of dominant function exerted by the F♯ midway through bar 22 (enhanced by the third, A♯, and

10. C.f. *HL* 'All these so-called non-harmonic tones ... are to be presented in our exercises in such a way that they emerge through melodic events. Their appearance, and the dissonances that they inevitably produce, are thus justified by the impetus of a motive or of a rhythm associated with a motive' (Schoenberg 1978: 332).

11. This reflects Schoenberg's comments in *HL* regarding rising sevenths. See Schoenberg 1978: 357-8.

12. Schoenberg had a particular liking for the progression from VII to III, as the early exercises in *HL* reveal (see for example, Schoenberg 1978: 91). This unusual progression, which conventional harmonic theory might reject, epitomises Schoenberg's idea of the secondary dominant and the primacy of root progressions.

13. This classfication (from the 'Chart of the Regions' described earlier) is well supported by the other allusions to the supertonic, both in terms of regional reference (such as the S/Tsm in Section 1), and in terms of the II degree in the tonic region (such as in bars 13-14).

the seventh, E). Moreover, the chord based on G♯ which extends through bar 23 appears as viable resolution for the F♯ seventh chord. The D-F♯-C chord which can be identified in the upper parts at the end of bar 23 succeeds this chord in the manner of a French sixth,[14] and when the note G♯ leads to A in the next bar, the fifth of the seventh chord is supplied, and the chord duly leads as a secondary dominant to the region of the supertonic in bar 25.

The conventional chord progression is short-lived, and the ensuing bar comprises a B♭-D-A♭ sonority which leads chromatically as an augmented-sixth to the tonic chord which begins the fifth section.[15]

iii) Sections 5 and 6

The motivic structure of Section 5 is based upon the canon at the fifth between the vocal line and the RH piano which extends to the subsequent phrase as well (bar 29-30). The Roman numerals in the score suggest a possible interpretation of the harmonies from the viewpoint of tonic, although the harmonies (in particular the successive mediant harmonies in bars 29-30) stretch the usefulness of Roman numeral classfications to their limits.[16] They also draw attention to the sudden harmonic emphasis on B major in bar 31, as E minor's dominant. However, this region does not explain the progression in which the B major chord is followed by an A♭ chord in bars 31-2, articulated by the chromatic movement of the root and seventh (B and A) leading by step to C and A♭ respectively.

The final section is introduced by the motivic fragments of α discussed above. The roots of the harmonies of the first beat of each bar (bars 33-36) articulate the augmented triad, and the symmetrical properties of the passage will be discussed further below. In terms of the regional analysis, the first and last chords of the sequence represent the tonic, while the intervening steps

14. Schoenberg identifies this chord as vagrant in *HL* (see Schoenberg 1978: 256) Its function has been discussed at length in respect of Skryabin's works (see Baker 1983a).

15. The supertonic G chord (bar 25) is followed by the subdominant (B♭) in the next bar. The seventh (A♭) above this root is introduced chromatically, and is reinterpreted as the augmented sixth above B♭, both of which resolve to the note A, third of F major in the first two beats of the new section. Although not supported by voice-leading, it is similar to the augmented sixth progressions which have been described by Wintle in respect of *Traumleben* (see Wintle 1980).

16. That is, the chordal syntax suggested by the Roman numerals demonstrates limited information about the diatonic derivation of the harmonies which they classify. This is particularly evident in the case of the two successive mediants (that capture harmonies a semitone apart) requiring alterations of the roots, which in turn represents for Schoenberg the breakdown of the functional model (see Schoenberg 1978: 354).

represent the mediant (A major), which plays a signficant role in the central section, alongside the flat submediant, perhaps an allusion to the C♯ which appears during Section 4 (bar 21).

The section itself (bars 35-38) is cadential, and repeatedly articulates an F chord at the beginning of each bar (36-38). This triad alternates with the diminished-seventh that includes F in bar 36 and 37 through chromatic voice-leading, thus rendering the functional classification somewhat unconvincing. More convincing are the functional classifications in the coda, which can be interpreted from the viewpoint of the tonic region (although they include vagrant harmonies and chromatic chord progressions). The roots of these chords and the strong bass line combine to suggest a convincing functional interpretation.

iv) Conclusion

The detail of the foregoing illustrates some of the principal elements of extended tonality. As in the other works discussed, the secondary dominants which lead to briefly articulated regions based on scale degrees are much more apparent than the dominant itself. The tonic is often approached by chromatic means (such as at bars 11, 27 and 36), but also by the supertonic (bars 15 and 32) and in the key structural points by means of the dominant (at the beginning in bars 3 and in the final cadence). It is also strongly asserted in the final section.

Tracing the way in which the regional orientation unfolds as the *Lied* progresses, Sections 1, 2 and 3 are harmonically based around the extension of F by E minor (particularly through E's dominant which includes both B♮ and D♯) although F's relative minor, D also plays a role (through its introduction of C♯). From the end of Section 3 through Section 4 the mediant and supertonic regions have consolidated the use of these notes, adding in particular G♯ and F♯, while the final sections, based on recalls of the first section, resume the interaction of tonic F with E minor with a demonstrably strong bias towards the former.

The analysis also underlines the referential properties of harmony that an extended tonality suggests. Thus, the D♯ (and B♮) of the opening β motif anticipate the E minor region in Section 2; the G♯ within β anticipates the region of the mediant in Section 3, while the D♭ followed by A in bars 34 and 35 (in the passage which articulates an augmented triad) refer to the earlier harmonic events in the work (such as β in bars 19 and 21).

Finally, the analysis reveals Schoenberg's theory to be hierarchical in positioning the region of E minor as an indirect and remote relation with F through the supertonic, later balanced by the equally remote B minor region which also relates to F through F's supertonic. The observation of the supertonic region itself in the central Section 3 underlines the coherence and regional balance of the whole.

In general, the harmonic analysis by region traces a possible tonal-functional path through the somewhat complex textures of *Ghasel*, which, even if it ultimately fails to depict its ultimate 'modernity' sufficiently, its flexibility has provided evidence of Schoenberg's own objective:

> ... although from the outset I have aspired only to a system of presentation, not a natural system, still I have found one point of view, at least one, afforded by the systematic contemplation of the older harmony that also permits a glance into the future: the principle, namely, that dissonances are the more remote consonances of the overtone series.[17]

C) *The post-tonal perspective*

Despite the difficulties in identifying sufficient harmonic syntaxes, the harmonic analysis illustrates that the motifs and themes are governed by, and interact with, a form of tonality. Nevertheless, it is possible to identify a consistent set of transformations which exist between instances of a given motif (and its variants). These have been captured in Example 4.3 (Vol. 2), which shows that T4, established as an intrinsic part of the β motif, extends to other linear patterns, and together with its inverse, T8, predominates in the final two sections (and the postlude) of the *Lied*. Other consistencies, such as the recurrence of the retrograde in the first two sections, returning in the postlude, can also be noted.

i) Pc-set relations between segments

The segmentation process has examined the linear passages, but also a large number of total content sets. The objective in this (as in *Verlassen*) is to identify whether universal differences between harmonic and linear pitch material (in terms of their pc-sets) can be found. The detailed segmentation which has been used in the pc-set analysis (see Example 4.4) does not yield any obvious nexus sets, and one could conjecture that pc-set coherence is less evident in this *Lied* than in *Verlassen*.

Certainly, there are fewer instances of pc-set relations between phrases and segments (either outside or within relations noted on the basis of other theoretical models) than in *Verlassen* or *Traumleben*. A number of significant exceptions can, however, be identified. When the

17. Schoenberg 1978: 329.

consequent (Σ) of the opening β motif-form returns in bar 29-30 (imitated by the piano RH in bar 30-31) its intervallic structure is substantially different, and it is only the rhythms which identify it with the original β and Σ. However, the pc-set relations do reveal an intervallic relationship. In bar 29, the set formed is 3-2, which is embedded within 5-2. The 'free' imitation (bars 30-33, piano RH) forms set 7-2, which is the complement of the original (5-2). Indeed, the set 7-2 has appeared as a total content set in close proximity to the original 5-2.

It is interesting to note that set 5-Z38 (abstractly, a diminished triad with two further semitones added to one of the ends) which can be found in the opening bars as the total content set, recalls its signficance in *Verlassen* (notably in the last two bars) as well as its instances in *Traumleben*, where it was the set of a recurring motif. The table in Fig. 4.4 below highlights some of the other correspondences between segments.

Set	Initial reference	Corresponding reference	Description
4-10	bars 4-7 (piano bass line)	8-11 (voice) 9-11 (piano RH) 8-13 (piano bass line)	This four-note segment initiated in Section 1, dominates Section 2 - especially in the bass line where successive iterations are 'dovetailed' with one another.
5-Z38	bar 2 (total content)	bar 38 (total content)	This set (mentioned above) is characteristic of these works, and appears here in similar circumstances, at the beginning and end of *Ghasel*.
6-Z12	bars. 6-9 (piano, inner part)	bars 21-23 (piano, bass line)	Linear phrase, not linked by motivic analysis, yet it supports a similar pc-set link where 6-Z4 appears in the vocal part, recalling the bass within bars 6-9.
6-33	bars 8-13 (vocal line)	bars 12-14 (total content)	Verticalisation of a linear phrase, in close proximity.
7-13/5-13	bar 20 (total content)	bar 26 (total content)	These two segments articulate the beginning and ending of Section 4 (essentially a piano interlude) and are complement-related.

Fig. 4.4: *Ghasel*, pc-set correspondences

ii) Pc-set genera

The charts showing the genera (see Examples 4.5 and 4.6 in Vol. 2) reveal some interesting conflicts between genera systems. In Section 1 the Fortean system scores G5 (the 'chroma' genus) with the same Squo as the PGS scores the diminished-seventh genus (4-28+). Closer inspection reveals that the two genera (with the high Difquo of 0.964) capture different sets: the diminished-seventh genus is focused on the 'total content' sets in bars 5-7, while the Fortean G5, rather usefully, captures pc-sets which underpin the key motivic elements β (6-Z4), α (4-1), Σ (5-2) and the sets represented by the θ forms, 6-Z12 and 6-Z11. Accordingly, a hybrid genera system has been constructed in which the diminished-seventh genus joins the Fortean genera to capture this separation, and the reduced matrix is shown in Example 4.7 (Vol. 2).

The second and third sections have been combined in the generic analysis on account of the similarity of their textures. The diatonic genera predominate in both the Fortean system and the PGS (reduced matrices of both appear in Example 4.8, Vol. 2), which is fairly predictable given the predominance of diatonic scalar constructs in the section. The non-diatonic constructs such as the β motif, the total content set 8-Z15 which captures the chord progression between diminished triad and minor triad in bars 10-11, and the total content set in bar 20 (7-13), alongside the unusual whole-tone and chromatic vocal line spanning Section 3, are encapsulated in the PGS as belonging to the whole-tone tetrad genus, based on the K*/Kd genus of 4-21.

The new section finds a return to the prominence of the diminished-seventh genus, a view supported to some degree by its prominence in the K*/Kd genera system, yet the genus of the chromatic hexad (not actually included in the segmentation) remains in first position. This perhaps points to the eminence of G5 which, as in the first section, is prominent amongst the Fortean sets. This particular segment underlines the difference between the Fortean G5 and the interval content as encapsulated by Parks's chromatic genus which does not appear in the top three in the PGS (nor does IC1 appear in top three of the IV genera system). Example 4.9 shows the reduced tables of the Fortean genera, the PGS and a 'hybrid' genera system.[18] The latter, in particular, separates the prominence of the linear sets 6-Z4, 6-Z12, 5-1, 4-1 and 6-21 (encapsulated by G5) from the sets representing total content segments, such as 8-12, 7-32, 6-27, 7-28 and 8-10 (encapsulated by the diminished-seventh genus).

In Section 5, the Fortean system appears to offer the most useful characterisation of the passage, preferable to the PGS on account of the high Squos, and the superior number of hits amongst its top three genera. The key genus for the Fortean system in this segmentation is G8, an 'atonal' genus so called on account of its formative basis in trichords 3-3 and 3-4 (which in turn are deemed to be closely associated with the atonal works of the Second Viennese School). Its membership is interesting as it includes a number of chromatic segment sets such as 6-1 alongside sets which, like 6-Z4, are constructed of two chromatic segments separated by a larger interval, whilst still retaining space for sets like 6-Z19 that are more generally regarded as characteristic of

18. This hybrid system is defined as the Fortean system plus 4-28 and the major scale genus, 7-35.

atonality.[19] This genus thus encapsulates the majority of the linear segments in this section, alongside a sizable proportion of the total content sets. G5 (the 'chroma' genus) in second place encapsulates the more chromatic sets promulgated by the PGS. In general the K*/Kd genera system echoes this contrast (although it prioritises the two types in the opposite order). The PGS points to a diatonic aspect in the section, distinguishing chromatic sets (recall that the ic1 basis of the Parks chromatic genus mixes chromatic segments with sets based on concatenation of two small chromatic segments) from those which might be called diatonic sets (in that they have embedding relations with 7-35). The passage therefore has three distinct components: atonal sets (marked by the G8 genus); chromatic segement-type sets; and diatonic sets (based on 7-35).

The final section (Section 6) also appears to point to contradictions between the systems. However, the Squos of the chromatic, atonal (4-17/19) and signature (6-Z19/44) genera from the PGS are significantly higher than those of the highest scoring genus from the Fortean system (G8). Indeed, in examining the placement of the segments in the score, the distinction between the linear segments of the passage (3-1, 6-Z4, 5-3, 7-7 and even 4-5) captured by the chromatic genus, and the remaining sets, most of which are total content segments, offers a convincing model of the passage.[20]

To summarise the findings of the genera analysis (refer to Fig. 4.5 below), the initial section is characterised linearly by chromatic-type segments, as a response to the pitch-class content of the *Grundgestalt*. It is also characterised by sets based upon the diminished-seventh chord, which could be deemed as a response to some of the intervals identified in the motivic analysis of the section. The following sections (Sections 2 and 3), by contrast, are unquestionably dominated by diatonic genera, with the only suggestion of an alternative posed by the chord change in bar 10-11, and this brings out the whole-tone characteristics of the passage. Although not a recapitulation in itself (though the second part of the section recalls δ), Section 4 finds a return to the genera of the opening, and when Section 5 recalls the thematic components of the opening section the setting is predominantly atonal, as characterised by the Fortean G8 genus. Within this predominating atonal rubric, it is possible to identify (with the help of the PGS) a more detailed level, showing how the sets in the segmentation might be classified as chromatic, diatonic and

19. See Solomon 1984 for a discussion of atonal-type sets in respect of Webern's atonal works.

20. The alternative suggested by the Fortean system would also find G8 hits on most of the linear segments (but not 7-7). Its hybridity, however suggests a lack of clarity as to what the genus actually represents.

atonal. The final section is predominantly chromatic, although the harmonies also suggest atonal properties (as highlighted by prominence of the 4-19/17 and the 6-Z19/44 genera amongst the pc-sets), concurring with sectional correspondence noted in the thematic analysis, and the return to the tonality of the tonic in the regional analysis.

Section	Key genera	Alternative	Supporting genera
Section 1	G5 (chroma) 4-28+ (diminished-seventh)		G12 (dia-tonal) G8 (atonal) 4-19/17 (atonal)
Section 2 and 3	G12 (dia-tonal) 7-35+ (diatonic)		4-21+ (whole-tone tetrad)
Section 4	G5 (chroma) 4-28+ (diminished-seventh)		
Section 5	G8 (atonal) G5 (chroma)	5-1 (from K*/Kd genera) 6-1 (from K*/Kd genera)	Chromatic
Section 6	Chromatic		4-19/17 (atonal genus) 6-Z19/44 (signature)

Fig. 4.5: *Ghasel*, summary of genera

The final group of pc-sets examined comprises the sets of the complete segmentation of *Ghasel*. In general such an approach is unlikely to yield useful results, because of the large number of sets which underpin the segmentation. However, it is presented here because of the various discrepancies between systems, in order to offer further substantiation of the sets used. Indeed, although the ordering differs, the top three in each system broadly reflect the detail of the groupings by section within the work's phrase structure as shown in the summary table in Fig. 4.5. Moreover, despite the strength of the diatonic genera in Sections 2 and 3, and of the PGS in Section 5, there are no diatonic genera scoring 'highly' in these listings.

The genera systems, nevertheless, disagree with one another, in that the Fortean system prefers the chroma over the atonal genus, whereas the proposed system positions its diminished and 'atonal' genera above the Parks chromatic genus. The genera proposed by the K*/Kd genera system offers support for both views: the table in Fig. 4.6 shows the Difquos between the respective genera.[21]

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21. These have been assembled by using the 'Set explorer' window within *Set Manager*, in which the genera are loaded into the Explorer view by using the command 'Show/load current genera systems'. The 'Difquo (group)' function can then be used to generate the data.

	6-1							
5-1	0.0806	*5-1*						
4-3	0.0494	0.1676	*4-3*					
4-7	0.5399	0.5307	0.0638	*4-7*				
4-28+	0.8825	0.7415	0.6121	0.6632	*4-28+*			
4-19/17	0.7355	0.5966	0.2348	0.0036	0.7147	*4-19/17*		
Chromatic	0.1403	0.1849	0.4382	0.4172	0.8762	0.7316	*Chrom*	
G5	0.4605	0.3416	0.5662	0.7244	0.9623	0.8658	0.3194	*G5*
G8	0.5850	0.7406	0.5615	0.1676	0.9623	0.4719	0.4656	0.6857

Fig. 4.6: *Ghasel*, Difquos for the top genera.

The genera 6-1 and 5-1 are more similar to the Parks chromatic genus than to Forte's G5. The genus of K*/Kds around 4-7 is very similar to 4-19/17 and quite similar to the Fortean 'atonal' genus G8 (understandable given the latter's constructive basis in 3-3 and 3-4, the two trichords which 4-7 embeds). As suggested by the discussion of Section 4, the 4-28+ genus is not similar to any other genus (especially the various chromatic genera).

In conclusion, it will be seen that the pc-set genera analyses are useful and consistent in identifying the main genera in a segmentation. This analysis has also underlined the importance of adopting a hermeneutic approach in aligning systems with a given segmentation, that is, where groups of Squo scores (grouped by genera system) are quite close together, the criteria for preferring one system over another will need to take into account the context of the sets within the segmentation. There is a strong case to be made for preferring systems which group similarly-functioning segments together over those which do not depict such dynamics. This is not to argue that Squo scores do not matter – indeed, the argument posed earlier that the Squo as the determinant of the significance of genera is a key construct in the theory and underpins much of its presentation in this study. It is rather to underline that analysis is concerned with modelling and intepretation, and a contextualisation of the data may suggest that the heuristic rigour of ranking based on Squo calculations be relaxed to allow a more pervasive reading to emerge. For the reasons laid out in that section discussing segmentation, the balance of the matrix in Squo calculations can be strongly constrained by small changes in a segmentation. The critical nature of this requires that further hermeneutical factors be used in deciding on the appropriateness of a genera system and its ultimate relationship with the segmentation of the musical object.

D) Conclusions

The motivic, harmonic and transformational analyses all portray *Ghasel* as a highly coherent structure within the bounds of their respective theoretical models. The pc-set genera analysis supported the findings of the motivic analysis in that the chromatic/diminished Section 1 was found to be significantly different to the diatonic Sections 2 and 3. It also suggested (where the motivic analysis did not) a strong similarity between the harmonic species of Section 4 and that of Section 1. In finding Section 5 (the canonic presentation of β) atonal (and the only such harmonic species in the work), it corroborated the view offered by the tonal analysis, that its harmonies were insufficiently captured by the 'Roman-numeral' method.

In providing some form of interpretation of the text it could be argued that the motivic analysis, and the extended tonality demonstrated by the harmonic analysis both support the idea of organicism which underpins the text of *Ghasel.* The idea of causal link between seemingly separate constructed objects as conveyed by the poem is also the basic idea underpinning Schoenberg's description of developing variation. Thus, the motivic content in Section 2 (in three phrases) contrasts to some degree with that of Section 1, perhaps providing a metaphor for the apparent distance between the two units 'narrator/sweetheart/rose' and 'rose/bee'. The distance is only apparent, however, as Section 3 brings together the β motif from Section 1 and the continuation of the reiterated 'slow trill' of Section 2, setting the words, '*So reihen wir uns perlenhaft an einer Lebensschnur*'. Although the setting of the following couplet (bars 21-25) has motivic links with the *Grundgestalt* (as suggested in Example 4.1), as a complete phrase it represents a point of contrast to the other sections (a point echoed perhaps by the regional analysis) until bars 24-25, which recall bars 5-6. The text is similarly placed – the idea behind 'We rejoice as petal on petal ...' is somewhat new, and when it concludes with '... forms the rose', the link with the rest of the narrative is made. The latter phrase is the point at which bars 5-6 are recalled.

The final two couplets (in which the narrator's kiss cuts through to the heart of the bee) are set to the canonic presentation of β motifs from Section 1, amid the background of a somewhat non-tonal structure that concludes with the symmetry of the T8 transformations of motivic feature 'x'. As in *Traumleben*, Schoenberg appears to have saved the more complex, modernist harmonic textures which identify with the harmonic species characteristic of his later music, for the final segment of text.

In this case, the last four lines of text do indeed stand out from the rest in that they represent the causal link between the four 'objects' (narrator, beloved, rose and bee) in terms of an action, an activity which generates consequences that reverberate through the chain. Thus, 'the kiss' represents the single active moment of the entire poem because up to this point the poet offers passivity – a description of the scene in which he is present, but plays no active part. In this light the uniqueness of the atonality of Schoenberg's setting (the genus of the harmonic species, the symmetrical transformations, the insufficiency of the Roman numeral figures) takes on a particularly expressive role, offering a message that aligns the flowering of organicism (the kiss) with the expressive potential of the new atonal sonorities that he sought.[22]

Schoenberg's 1932 description of how he felt his music expressed the text of a poem, quoted in Chapter 1, is a particularly apt description of the style of expression in *Ghasel*:

> It had apparently been thought that I took no notice whatever of texts, since with me they no longer give rise to sounds like a storm or swords clashing or sardonic laughter ... My music, however, took representational words into account in the same way as abstract ones: it furthered the immediate, vivid rendering of the whole and of its parts, according to the measure of their meaning within the whole.[23]

Thus, the joining of a coherent motivic and harmonic structure (with an explicit expressive role for the new harmonies he sought to present) provides a potent metaphor for the organicist message of *Ghasel*.

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22. The fact that Section 5 is structured around the traditional procedure of canon at the fifth only serves to underline the distinctiveness of the passage. Indeed, similar technical devices derived from traditional practice and transported to the new harmonic context were used by Schoenberg, Webern and Berg throughout their works, and were often cited as elements which align their music with the mainstream musical tradition.

23. Schoenberg 1968: 32.

Chapter 7: The Petrarch *Lieder*: Analyses 5-7

The three Petrarch settings have been referred to as a group of songs set apart from the other Op. 8 or Op. 6 songs. There is considerable evidence within the songs to support this view, particularly in respect of the motivic and contrapuntal density, as well as the fact that they were composed in succession in the summer and autumn of 1904. Nevertheless, the distinction between the Petrarch settings and the other songs of this period is one of degree rather than departure. Harmonic and contrapuntal techniques as revealed by the perspectives are reminiscent of those found in the other songs, although the degree of complexity is considerably deepened.

A possible precedent for Schoenberg's interest in Petrarch can be found in the works of Liszt, although it is not clear whether Schoenberg was aware of the three Petrarch settings of Liszt: that is, either the three Liszt songs (of 1846) or the piano transcriptions of the same (in *La Deuxième Anné* from *Les Années de la pelèrinage*) published simultaneously. The free composed structure of Liszt's songs bears little resemblance to Schoenberg's, and the Liszt settings do not unfold the contrapuntal complexity of Schoenberg's. Nevertheless, there are certain peripheral similarities: both composers set three unrelated Petrarch sonnets and both sets are unique amongst their respective compositional output.

An important characteristic of the Sonnet, referred to in the analyses, is its fourteen-line structure which the first eight lines (referred to as the 'octave') is set apart from the final six (referred to as the 'sestet'). In each of the three orchestral *Lieder*, this division has considerable influence on the structure of the setting.

Analysis 5: Op. 8 No. 4, *Nie ward ich*

'*Nie ward ich, Herrin müd*' (hereafter *Nie ward ich*) is a translation of Petrarch's sonnet No 82.[1] [2] It is an unusually embittered sonnet which focuses on the frustrations of the lover with his seemingly intransigent beloved. Although the direct cause of this frustration is not revealed, the implication is that lack of commitment or a suspected ulterior motif on the part of his beloved is to blame. The poet declares that this attitude is reprehensible and will not prevail, as love itself will see to that.

A) Form and motif

i) Phrase structure

The phrase structure of Schoenberg's setting broadly follows the semantic and syntactic content of the text. The introduction is the shortest of all of the Op. 8 *Lieder*, suggesting that it looks back to the early Op. 6 *Lieder*, rather than forward to the other Petrarch works. In the eight-line octave, equally short interludes separate the first couplet from the second, and the second from the third, while the setting of the third and fourth couplets to a single extended phrase follows the syntactic and semantic content of the text in not observing a break between couplets. A longer instrumental passage separates the octave from the sestet, and a similarly extended interlude marks the full-stop at the midpoint of the final tercet. Like all the other songs from Op. 8 (and most of Op. 6), *Nie ward ich* concludes with an extended postlude. Fig. 5.1 summarises the phrase structure, illustrating that the music articulates in the first instance the syntactic and semantic content of the text. In doing so, it also frames the couplet and tercet structure of the sonnet.

The division between octave and sestet is further articulated by the motivic content of the sections (discussed more fully below). The formal content of the octave might thus be regarded as expository, in that each of its three sections is based upon separate motivic contents, while that of the sestet is essentially recapitulatory, as indicated in Fig. 5.1, led particularly by Section 4 in

1. The numbering used here is in accordance with Durling's translations (Durling, 1975).
2. There are two deviations from the original Italian. Förster's translation makes use of an unusual metaphor in line 3. The phrase '*ma d'odiar me medesmo gennto a viva*' (but I have come to the end of hating myself) is translated as '*vom eigen Hass doch nun ans Land ich treibe*'. (yet hatred of myself casts me ashore). This phrase presumably invokes the idea of coming to the sudden end of a voyage. Förster's translation adds a sense of ambiguity to the last line as '*O Lieb [...] deinem Fügen*' (Love's decree) could be referring, as in the Italian, to the haughty girl, or could be addressing love itself directly (a play which is absent from the Italian).

which the content of Section 2 is recalled transposed up a semitone, while Section 5 and 6 recall α and β.

Section (Setting)		Bar	Couplet/Tercet	Main motivic content.
Part 1 (Octave)	Introduction	bar 1		$\alpha\gamma$
	Section 1	bars 2-10	Couplet 1	$\alpha\,\beta$
	Short interlude	bar 11		$\alpha\gamma$
	Section 2	bars 12-19	Couplet 2	$\delta\,\Sigma\ :\Sigma\,\delta$
	Short interlude	bar 19-20		β
	Section 3	bars 20-34	Couplet 3 and 4	α free imitative counterpoint
	Orchestral interlude	bars 34-37		β
Part 2 (Sestet)	Section 4	bars 38-50	Tercet 1	Recall of $\delta\,\Sigma$ (under T1 of § 2)
	Orchestral interlude	bars 51-55		Sequences of γ, Sequences of β
	Section 5	bars 56-65	Tercet 2 (lines 12-13)	Recalls of α
	Short interlude	bar 66		γ
	Section 6	bars 67-72	Tercet 2 (line 14)	Recalls of α and β
	Orchestral postlude	bars 73-85		$\alpha\,\beta$

Fig. 5.1: ***Nie ward ich*, phrase structure**

ii) Motivic structure

Despite the 'main motivic content' column in Fig. 5.1 which perhaps implies that the thematic structure is based on, or is articulated by, the recurrence of thematic motifs, a detailed examination of the motifs of *Nie ward ich* suggests an intensity of motivic development which, in terms of scale and scope, exceeds the works which have preceded it. The following graphs and commentaries argue that the phrases are comprised of an integrated succession of motif-forms, bound by a recurring set of central motif features.

Example 5.1 (Vol. 2) shows the initial instances of the motif-forms which have been distinguished, preceded by an annotated extract from the opening bars, and (on the right hand side of the page) a 'key' to the motive features. This example can be reconciled with Example 5.2, which shows these motifs (and, in some instances, motive features) annotated on the score.[3] Although comprehensive, this cannot claim to be exhaustive, as the full extent of motivic detail is beyond the limits of the techniques of presentation outlined here.[4] Examples 5.3 to 5.5 attempt to capture

3. Note that Example 5.2 is based on the orchestral score, rather than Webern's transcription for piano. In essence these two scores do not differ except for occasional modifications to register in order to accommodate the obvious need for the notes to be able to sit (at least theoretically) under two hands.

4. After all, developing variation aspires to motivic transformation from one form to another, whereas analysis by identification of motif-forms and motif features requires classification,

the ongoing development of the α, β and 'other' motif-forms respectively, by extracting the main instances and their alterations.

Although Motif γ represents the first phrase of the work, and indeed many of the subsequent phrases are characterised by the falling semitone which it includes, its scalar aspect suggests that it is not an ideal candidate for *Grundgestalt per se.* However, it can be regarded as connecting with the phrase of the vocal part which immediately follows through the common pitch-classes C-B♮ and F, the content of the α motif (as shown in Fig. 5.2 below). This illustrates a connection between the α and γ motifs, which is further enhanced by details such as the recurring semitonal pair A-G♯, and the retrograde relation between bass line (bars 1-2) and vocal line (bars 2-3), and its interaction with the inner parts (bars 2-3). It seems appropriate, therefore, to propose the first three notes of the γ motif along with the sustained F as the provisional *Grundgestalt*, which generates the motivic content of the work.

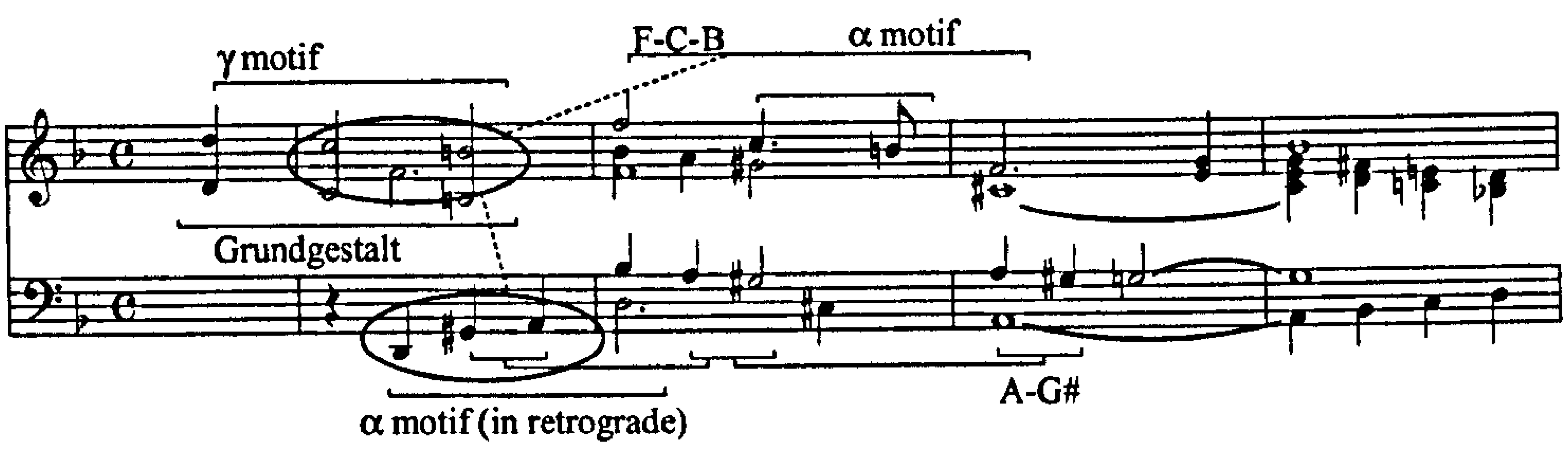

Fig. 5.2: ***Nie ward ich*, opening, bars 1-4**

The way in which these features underpin the other motif-forms (β, δ and Σ) is shown in Example 5.1, testifying to the motivic coherence of the whole, and the derivation of each motif-form from the *Grundgestalt*. At the same time, each motif-form undergoes its own set of transformations which form part of the process of developing variation.

Thus, the α motif of bar 14 may be regarded as a RI form of the original (see System 3 of Example 5.3) which recurs in bar 21, under the rhythmic augmentation which was originally a property of the 'y' motif feature (System 7). The introduction of accented passing notes to the variation of bar 18 (System 5) generates a concatenation of the motif features 'x' and 'y'; the effect of which represents a significant alteration of the original retrograde form. Moreover, these two motif

hindering the presentation of the transformation process itself. This is a conundrum defined by the opposite nature of theory and compositional practice which, given the evidence of the 'non-harmonic tones' dialectic from *HL*, probably would have appealed to Schoenberg. The point will be amplified further in the conclusions.

features underpin the next variant of α in the following bar, bar 19 (System 4). At the conclusion to the setting of the final phrase of the text (bar 72) the orchestra reiterates the phase from bars 2-4 (actually recalled in the vocal line of bars 62-64) amid the articulation of the retrograde form in the bass line in augmented rhythms. This combination offers an indication of the autonomy of motif from harmonic and phrase structure.

Motif α also dominates Section 3, in particular bars 21-29, where the *cor anglais* part can be analysed as a set of free variations of an initial α form (quoted in System 6 of Example 5.3). This line interacts through free imitation with both the bass line (note how the anacrusis the motif acquires in the *cor anglais* in bar 22, becomes an addendum in the bass line) and the vocal line (in bars 25-26), both of which generate motif-forms that are new (see bars 21-27 in the score in Example 5.2). The bass line thus assumes a *Gestalt* which resembles the vocal line at bar 21 (and for that matter bar 14 from Section 2). The vocal line in bar 26 acquires a triplet pattern (recalling Motif γ) and in bar 27-28 expands the descending interval to a ninth, confirming (under the assumption of octave equivalence) the allusion to Motif γ. The detail of the connections between distinct motif forms underlines the difficulty in adequately portraying the true nature of developing variation by using symbols. Nevertheless, this description is intended to offer a sense of the pervasiveness of Schoenberg's use of developing variations.

The developing variations of Motif β are shown in Example 5.4 and also reflect the pervasiveness of developing variation. The instances in the bass line of Section 1 offer a good example of the way in which Schoenberg appears to have combined the notion of sequence with developing variation in order to address, perhaps in the light of his references to the issue discussed in the previous chapter, what he saw as an artistic short-coming in the former. Tracing the β motif in the bass line from bar 4 (Example 5.2, Vol. 2), one can note its derivation from α (in particular the instances of motivic features 'a' and 'w' in the former – see Example 5.1), and the fact that the vocal line moves in free canon in response to both the first and second instances of β. The second instance (bars 6-7) is an exact transposition of the first up a major third (the preciseness of which is not matched by the vocal imitation), and when a third instance follows (bars 8-9) its characteristic fourth interval (motivic feature 'w') is absent. One might therefore regard the motif as being liquidated – in the sense of being reduced to a scalar form. However, this is liquidation with a form of 'motivic precedent', for it is possible to identify within the scalar pattern, evidence of the γ motif, distinguished by a triplet rhythm (bar 8, bass line). The freely formed motivic fragment is immediately reiterated in kind by the vocal part (bar 9), in that it comprises the same pitch-classes amid a triplet pattern that represents an augmentation of the bass part. The bass part immediately reiterates the triplet γ motif in the following bar, thus effecting a cadence. The passage typifies the way in which motif-forms are amalgamated by a developing variation technique, which is underpinned by the common motivic features.

The variants of Motif δ and Σ (which appear simultaneously in Section 2 and are recalled in Section 4) are noted in Example 5.5. The example indicates motif features which these motifs hold in common with α and β while the final system shows how Σ is derived from β, through retrograde inversion.

These examples illustrate the importance of sequence, imitation and canon as tools that Schoenberg uses to 'develop' motifs in *Nie ward ich*. The interlude which connects Sections 4 and 5 is unique, in that in the uppermost part a sequence of descending scalar fragments (Motif γ) is governed by transposition up a fourth, while the interval pattern of the initial instance is precisely preserved. Compare this, for example, with the sequence of ascending fourths which can be observed between bars 56 and 60 where the transposition levels are inconsistent, or the three variants of β in the middle and lower registers in an earlier passage (bars 52-55) where neither the transposition level nor the successive interval pattern within the motif is consistent (see Fig. 5.3 below).

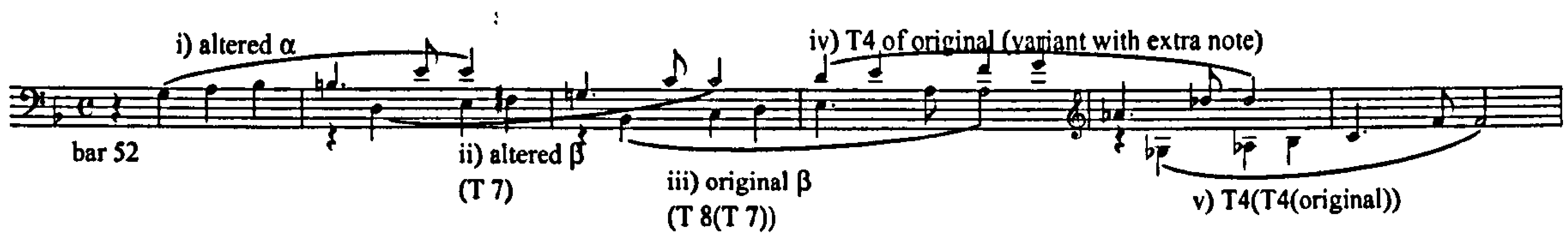

Fig. 5.3: *Nie ward ich*, successions of motif-form β, bars 51-55

Like most of the imitative or canonic sequences in *Nie ward ich*, this example reveals a mix of small-scale consistencies in confrontation with other inconsistencies. One particularly interesting structural aspect of this phrase, however, is that the three starting notes represent the three pitch-classes of the subdominant augmented triad from Section 1 (the significance of which is highlighted in the next section), while the respective final notes represent the three pitch-classes of the 'dominant' augmented triad from the opening section.

The most important point, however, is that these sequences illustrate the independence of the actual motifs from each other (both within the same motif-form, and between the different motif-forms), and their patterning is not reflected by a similar patterning in the harmony, nor even a harmonic structure that might be deemed sequential, although, as the harmonic analysis shows, this is not to say that the harmony is without directed motion.

iii) Summary

The motivic development of *Nie ward ich* is complex and pervasive, and although it has been possible to identify motif forms (as illustrated by the use of Greek symbols), there are numerous of 'motif features' which originate in the *Grundgestalt* and are common to several motif forms, especially when their variants are considered. With the exception of Section 2, the sectional structure is not articulated by singularity of motif-form, rather each section is comprised of their ongoing development. Nevertheless, the motivic structure still enables one to identify a sense of recall or recapitulation in certain sections that points towards the three-part form that has been identified elsewhere in these *Lieder*.

Moreover, there is little direct interaction between text and music in *Nie ward ich*, in the way, for example, that could be found in *Natur*, or that Holzer finds in *Voll jener Süße*.[5] Thus, when the δ motif is recalled in Section 4 (alluding to Section 2), there is no particular relationship (neither semantic nor syntactic) in the text between the corresponding second couplet in the octave, and the first two lines of the sestet. No other particular images from the text appear to be evoked in the music, although this does not preclude a more general interpretation, as will be suggested below.

B) *The harmonic perspective*

The harmonic analysis of *Nie ward ich* is at once confronted by the issue of overall tonality. The F major tonality suggested by the final chord and the key signature is contradicted in bars 1-2 by the prominent B♮s, suggesting that the overall harmony is under threat from the outset. Admittedly, B♭ is restored fairly quickly afterwards, but there is very little that is 'F major' in the opening section, and indeed any other section, as an examination of Example 5.6 will suggest. The frequency with which B♭ appears as a tonal centre suggests it merits consideration. Nevertheless, for the time being, the current study will take Schoenberg's conception of how a

5. Holzer 2000: 80.

central tonality relates to the entire work and assume that F major is the main tonality, as is illustrated in Example 5.6.[6]

i) Section 1

Where the motivic analysis divides the first section into articulations of α and β in approximate accordance with the articulation of the two lines of text, the harmonic analysis suggests a similar division separating the region of the subdominant and the Neapolitan, G♭ or F♯.

The harmonic uncertainty of the opening, which seems initially to suggest D minor, as articulated by the α motif in bar 1, is increased by the consecutive augmented triad sonorities which could theoretically be viewed as ascending fifth (i.e. V-I) type progressions in any of three regions (bars 3-4). D minor's claims appear to be enhanced by the fact that the lowest voice in bar 3 represents D's dominant A with a prominent seventh, and while its dominant is more clearly articulated at the conclusion of the next bar (bar 5), no tonic follows. The claims of the subdominant, B♭, are also well served by the opening where it supports the initial voice entry, and the ascending fifth progression (through consecutive augmented triads) where the bass line would represent the leading-note moving to the tonic. The V-I progression in bar 6, together with support from the 'w' motivic feature, confirms a strong sense of the region around B♭ despite the somewhat disjointed voice-leading and unusual phraseology.

With almost immediate effect the harmonic direction moves in favour of the Neapolitan (see the articulation of tonic, supertonic and dominant within 'Np' in bars 6-7), which has been prepared during the harmonic ambiguity of the opening (as indicated below the stave in the graph).[7] The Neapolitan prevails until the end of the section where the harmony has been interpreted in terms of a fifths cycle that concludes with G♭'s dominant.

Looking at the harmonic content of Section 1 from a more objective viewpoint, one finds that in the first part of the section the triads of B♭ and D are emphasised, while in the second the emphasis falls on B♭ and G♭ – and the harmonic analysis confirms that the strongly reiterated presence of the three triadic entities is supported to some degree by residual tonal elements.

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6. See the earlier section which relates the concluding key of the tonal work with the centricity of the tonic (Chapter 3: 65).

7. Note particularly how, just as the succession of augmented triads (bars 3-4) which has been read in terms of an ascending fifths progression, could be regarded from the viewpoint of both D minor and B♭ major as a 'V - I'-type progression, it could also be given the same interpretation in terms of the Neapolitan, F♯.

These three tonalities divide the octave equally, articulating members of a single augmented triad, which is actualised on the musical surface in the form of the triad identified in bar 4. One might further conjecture that the reiteration of β in bar 6-7 is a T4 transformation of the instance at bars 4-5, and therefore represents a foregrounding of the underlying interval separating the three cited regions.[8]

i) Section 2

Motivically, Section 2 may be divided into two phrases, each of which is made up of simultaneous articulations of Σ and δ (with the two changing registers and instrumental timbres at the mid-point) supported by a singular harmonic region.

Like Section 1, the section is introduced by Motif γ in conjunction with α, forming a cadence into the region of the subdominant. However, the D♮ quickly becomes D♭ which is sustained throughout the section, refining the modality of the region to minor (supported by the occasional G♭ within the viola ostinato figure) that is sustained until a final cadence marks the end of the section around bar 18. This is not a categorical subdominant regional articulation – the E♭s of the Σ motif are challenged by the E♮s in the viola figure, and the harmonic instability is characterised by the alternation of submediant (a diminished triad) and flat submediant.

The region's dominants, when they occur in bars 12, 14 and 15, are invariably augmented triads, recalling the instances of the augmented triad in Section 1 (in that they comprise the same notes), but the fact that they are not conventional major triads, and their reiterated presence, points to a neutrality that perhaps refers to the fact that, in terms of the overall F major tonality, these entities are the 'secondary dominants' built on the tonic chord.

8. An additional 'T4' can be identified in that the triplet figure in bar 9, which itself is anticipated by the bass part in bar 4, is a T4 of the subsequent triplet figure in the bass part. However, the interval structure of the respective scalar patterns is not equivalent. Moreover, where the augmented triad succession of bars 3-4 was interpreted as a V-I progression in these three regions within the context of the harmonic analysis, one can equally regard this as a process of transposition up a semitone (T1). Other localised instances of T1 or T11 (T1's inversional counterpart) transformations of motifs include the three-note semitone group in the woodwind (bars 2-3), and the fourths element from β, where T1 of the bass part in bar 5 can be found in the voice part in bar 6. Where the content of this section is recalled in the second part (bars 62-65), it is anticipated by the instance a semitone lower, rendering the recall as a T1 of the previous two bars. Nevertheless, the isolated nature of these examples is not sufficient to suggest a larger scale process, although the examination of the pc-set genera below emphasises the 'chroma' genus which comprises a predominance of ic1.

iii) Section 3

The counterpoint between the three parts which articulate freely formed variants of the α motif (characterised by the dotted rhythm of motivic feature 'b') dominates this section until bar 30, where the return of the β motif restores the even (non-dotted) crotchet pulse. The motivic feature invariably associated with the α variants is the falling second, either or both notes of which variously act as suspensions, or as harmonic entities that can be described by the Roman numeral notation. To illustrate, the example in Fig. 5.4, below shows the beginning of the section, in which suspensions are marked with a + and notes which have been interpreted as 'harmonic' within one of the stipulated regions, with an 'o'.

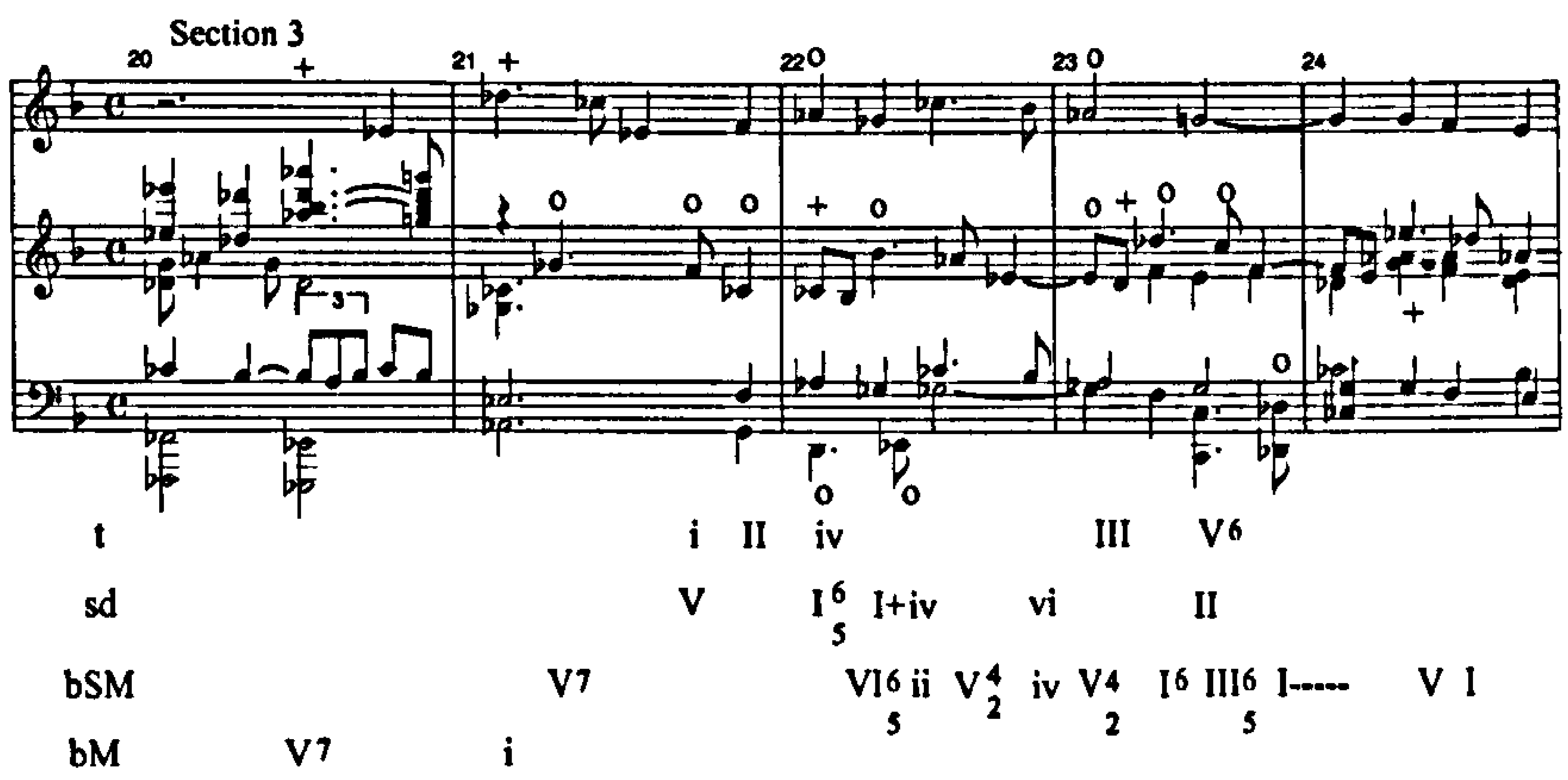

Fig. 5.4: *Nie ward ich*, beginning of Section 3, annotated harmonic analysis

The lack of consistency in respect of the harmonic interpretation of the suspensions underlines the independence of motivic structure over the formation of harmonic constructs as described above. At the same time the classifications of the harmonisations at the points marked 'o' illustrate how the harmonic constructs make reference to key chords in the different regions intermittently, preventing any particular region from encapsulating the complete succession of chords, while creating a sense of coherence within the concept of extended tonality as described by Schoenberg. It can further be argued that such passages illustrate how extended tonality can be deemed to support Schoenberg's notion of 'non-harmonic tones' which is part of the dialectic of *HL*.[9]

Nevertheless, the first part of the section can be predominantly understood from the viewpoint of the region of the flat submediant, D♭, which is punctuated by fleeting references to the tonic

9. See Schoenberg 1978: 309.

minor region (F minor). As in Sections 1 and 2, a degree of convergence is promulgated by the augmented triad (a factor which links the two). Both regions (tonic minor and flat submediant) appear to prepare the conclusion of the section where the region of the minor subdominant is reiterated.

iv) Section 4

Although one could describe the passage in bar 36-38 in terms of the region of the supertonic, G major, the dominant region seems more appropriate, given the strong sense of its own dominant in bar 38 and again in bar 41, following which a set of ascending fifth progressions confirms its status. However, between these two dominant harmonies, a passage (marking the beginning of the new section) based on the alternation of an augmented triad and diminished-seventh chord unfolds, and although the overall functional classification in terms of the dominant region is noted, a more appropriate region is perhaps the Neapolitan (as indicated in Example 5.6).

The reiteration of secondary seventh chords with root A, in bars 45 and 46, combined with the VII7 chord at the beginning of bar 43 and midway through bar 44, points towards the region around the submediant, D, which is F's relative minor. In fact, this might be regarded as a preparation for the climactic B♭ chords which follow (bars 49-50), reasserting the region of the subdominant at the conclusion of the section.

v) Sections 5 and 6

The extended interlude which precedes Section 5 initially recalls bar 1 (thus launching a recall of the bass line of bars 1-5 in bars 51-55), but its scope is more extended making use of motifs γ and β in a series of sequence patterns. It remains somewhat resistant to a regional classification, despite the bass-line recall. The regions presented in the analysis are those of the subdominant and the submediant, yet are by no means unequivocal.

Moreover, these regions offer little connection with the following passage (bars 56-60), in which it is possible to trace the progressions from the viewpoints D♭ (C♯), G♭ (F♯) or even B, with each region yielding to the tendency 'flat-wards' towards its subdominant. This sequence of major/ minor triads, augmented triads, dominant and diminished-sevenths can be classified as a series of progressions governed by simple descending fifths cycles, as the Roman numerals suggest (the graph has limited itself to D♭ and B, the regions of the ♭SM and S/TM). No particular region predominates, and the harmonic state of 'flux' forms an anacrusis to the recapitulation of α (bars

62-63) at the original pitch level in the vocal part (anticipated two bars earlier by an instance a semitone lower in the orchestra).

While the recall of the opening (bars 63-65) serves to reiterate the regional dichotomy between B♭ and D minor, the subsequent passages can also be classified in terms of either region. The climactic conclusion to the vocal part, in which the bass line reiterates its line from bars 1-4 in an augmented rhythm that spans bars 69-75, offers an interesting *double entendre* at the climax of the vocal part (bars 70-71). The G♯ chord suggested on the first beat of bar 70 refers to the region of the ♭submediant (though not classified as such in the example) which played a central role in Sections 3 and 5, in which it is dominant. The E♯ to which the top line moves on the central beat repositions the chord as VII-seventh of the region of the Neapolitan, which refers to Section 1. Though the following chord appears to be a ninth chord above bass A (which duly leads to D across the bar-line, via B♭), the strength of the F in the middle register also suggests itself as a root (especially before the C is sharpened on beat 3), and so leads as dominant to the B♭ on the first beat of the new bar.

The final phrase of the postlude is of interest as it juxtaposes the dominant-sevenths of D (submediant) and of G♭, the Neapolitan, each of which were significant regions in the work, before the final V-I cadence in F major. Indeed, the final F chord is dominant of the other significant region in the work, subdominant B♭.

vi) Sectional summary

Although the harmonic analysis did not identify many harmonic progressions in *Nie ward ich* which could claim direct allegiance to the tonic key F major, there is a significant amount of support for the centricity of F major within the overall regional structure, in the context of Schoenberg's descriptions of extended tonality. Indeed, as Schoenberg's remark on the harmonic schemes in the late tonal works suggests,[10] works such as the Petrarch *Lieder* would not necessarily have to include extended passages 'in the region of the tonic' – it is rather the 'rich, varied use of the *Stufenreichtüm*' which perhaps captures the essence of the tonal plan of *Nie ward*

10. See Schoenberg 1978: 383. The remark refers to *Lockung* as an illustration, also mentions the tonality of *Voll jener süße*, and will be discussed in the context of the next analysis, below.

ich.[11] Thus, it is the *Stufen* of F major which are most representative of its central role as the main tonality.

The following chart (Fig. 5.5) summarises the regions within the context of the sectional structure as well as the main motifs.

Sections	Bars	Region	Corresponding 'key'	Function in F	Main motif-forms
Section 1	1-6	SD : sm	B♭ maj : D min	IV : rel min	Rα & α
	6-10	Np : SD	G♭ maj : B♭ maj	Np : IV	β
Section 2	11-18	sd	B♭ min	iv	δ & Σ
Interlude	18-21	bM	Ab maj	♭III or V/rel maj	
Section 3	21-33 33-34	♭SM : t SD	D♭ maj : F min B♭ maj	rel maj/iv : I IV	Var on Rα
Interlude	34-36 36-38	♭SM : D	D♭ maj C maj	rel maj/iv V	β
Section 4	38-43	♭SM	C maj	V	δ & Σ
	43-51 46-51	sm	D min Bb maj	rel min IV	β, frag. of α
Interlude	51-54	SD	Bb	IV	α, β
Section 5	56-57 58-61	♭SM SM	Db maj D maj	rel maj/iv VI	β, α,
	60-65	SD : sm	Bb maj : D min	IV : rel min	α & Rα
Section 6	67-72 71-72	SM SD	D maj B♭ maj	VI IV	Σ & frag of α
Postlude	73-75	SD : sm	B♭ maj : D min	IV : rel min	β
	76-78	♭SM	D♭	rel maj/iv	α
	79-85	SD T	B♭ maj F maj	IV I	frag. of α

Fig. 5.5: *Nie ward ich*, regions, by section

The recurrence of the region of the subdominant perhaps reflects the role of that region within Schoenberg's theory, as highlighted earlier. Through its influence the region of the Neapolitan (as its submediant), and the flat submediant (as its dominant) can be related to the tonic, by means of the notes common to each.

Elusive as the harmonic structure of *Nie ward ich* may seem at first, the regional structure, articulated by secondary dominants, makes sense when examined from the viewpoint of the theory that Schoenberg articulated. Indeed, the regional structure is ultimately clarified by the ascending V-I-type progressions which persist throughout, perhaps to a greater extent than in

11. Schoenberg 1978: 370.

some of the other *Lieder* examined. The degree to which *Nie ward ich* coheres from a more overtly twentieth-century theoretical stand is the subject of the next section.

C) *The post-tonal perspective*

The segmentation strategy in *Nie ward ich* retains the objectives highlighted in previous analyses, on the one hand examining the melodic, linear phrases looking for relationships between such segments that the motivic analysis was not sufficiently equipped to highlight, while on the other investigating the harmony with a view to evaluating the effect of extended tonality on harmonic segments. This will also allow an assessment to be made about the interaction of harmony and melody while addressing the issue of the overriding harmonic species. The dense counterpoint of *Nie ward ich* complicates the task to some degree, because of the large 'turnover' of notes within a short span of music. The analysis will concentrate on the first three sections.[12] Example 5.7 (Vol. 2) shows the pc-set segmentation, and the two charts in Examples 5.8 and 5.9 show the top three genera, by system, before and after reduction respectively.

i) Section 1

A superficial examination of the first few bars shows the importance of set 3-5, the progenitor of one of the Fortean 'atonal' genera, in that it is formed by the α motif, as well as appearing within forms of the β motif (see bar 8). Indeed, as noted in the motivic analysis, bar 2 was regarded as a re-composition of the main pitch-classes of bar 1, the C-B of the initial violin line, and its association with F in the lower string parts (the combination of which forms 3-5), forming the main part of the α motif, while the G♯-A in the bass part is reiterated in the chromatic three-note line in the strings. Moreover, when the addition of B♭ at the beginning of bar 2 connects chromatically, at an abstract level, with the two chromatic pairs C/B and A/G♯, the C♯ (bass line at the end of bar 2) links this chromatic pentad with D to form a chromatic heptad, which pc F bisects symmetrically. This is shown below in Fig. 5.6. The process is the kind of chromatic structural process which is more typical of the atonal works.

12. This strategy has been adopted in order to focus the study on sections in which the genera analysis furthers the analysis. The first three sections are in the main of more analytical interest than the later sections, in that they set out the main motivic material, and their harmonic species provides a contrast with the more diatonic species of the second half of the work.

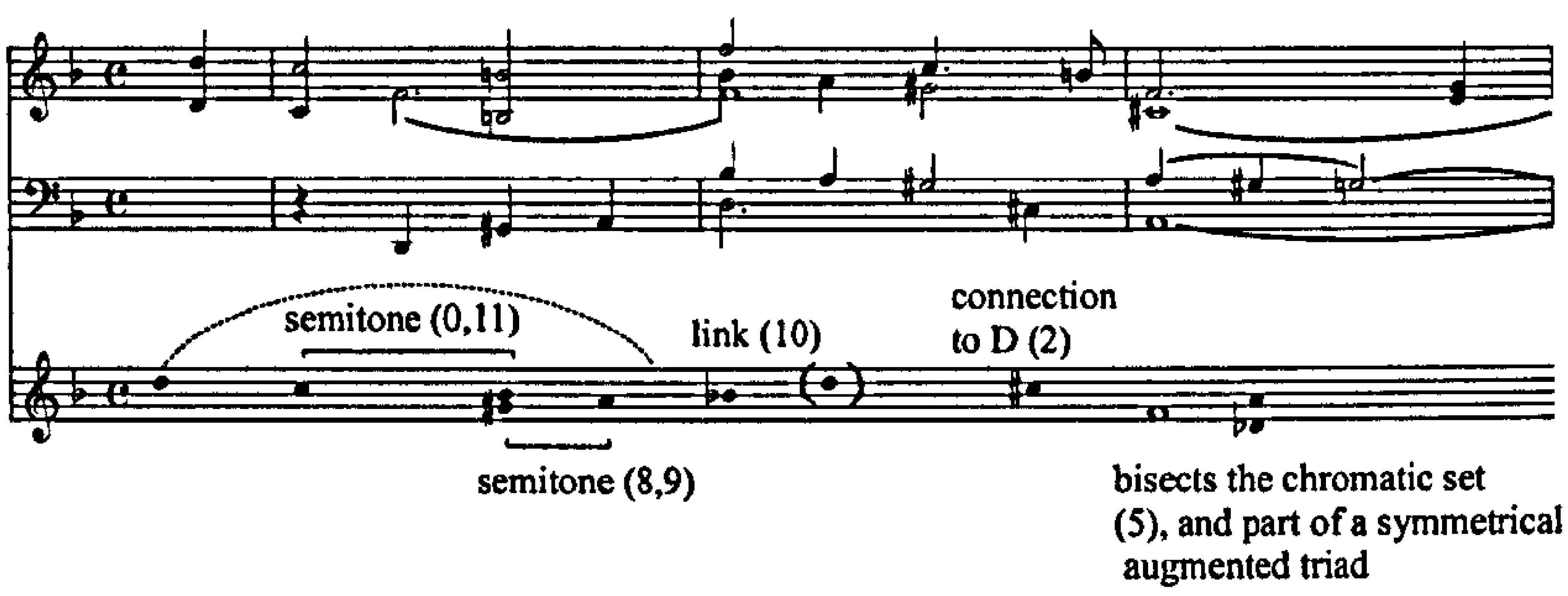

Fig. 5.6: *Nie ward ich*, bars 1-3, chromatic pc segments

Further examples (as were found in the first four analyses) where pc-set relations exist between discrete harmonic segments, can be adduced by examining Example 5.7.

The genera chart in Example 5.8 once again appears to indicate conflicting results across genera systems, with the Forte system indicating a chromatic-type genus (G5) while the PGS (alongside the Parks IV system)[13] indicates a diatonic interpretation. However, further examination indicates that the two genera are identifying different pc-sets (the only set in common being 3-2), although neither genus can be associated with a particular aspect of the musical surface. The K*/Kd system highlights the pervasive influence of the genus around set 6-9 (the set of the first violin part that extends through bars 6-10) which hits on 18 of the 27 members. Indeed, the K* intersection table of the top 30 genera by 'hits' (See Example 5.11) shows that 9-2 comes close to being the perfect genus for this segmentation, hitting 26 of the 27 sets (with a Squo of 0.609 that is comparable with the Squos of the top three genera in each system) and that 8-10, with its Squo of 0.914 and 20 hits, is another potentially important genus. The latter set, is in fact, that of the cello line in bars 6-10. Accordingly, a hybrid system has been constructed from these genera, and the matrix (both before and after reduction) is displayed in Example 5.12.

ii) Section 2

The pc-set analysis reveals an inherent connection between the Σ and δ motifs, which form the basis of this section; they each belong to the same pc-set, 5-10. Moreover, the two instances interlock (with common pitch-classes D♭ and C) to form the octatonic set, 8-28. The pc content of the bass line is also based upon this octatonic collection, as do most of the other parts.

13. The Parks IV system does give the highest Squo to IC2, which indicates a whole-tone species. However, the fact that the IC5 genus is in second place (equal with the chromatic IC1 genus, although the latter does not have any singletons, whereas IC5 has 2) underlines the suggestion of diatonic, thus supporting the PGS view.

However, within the viola ostinato, the note F remains the sole dissenting pc until the beginning of bar 18, where the cadence starts (see Fig. 5.7 below). The viola figure itself consists of sets 3-2, the octatonic member, and 3-1, aggregating to 4-1.

The fact that dissenting note F is the overall tonic of *Nie ward ich* is perhaps not insignificant, and in the local context its role can be regarded as referential in that it enables the reiterated articulation of an augmented triad at the points marked with an asterisk (*) in Fig. 5.7, thus providing a connection with Section 1.

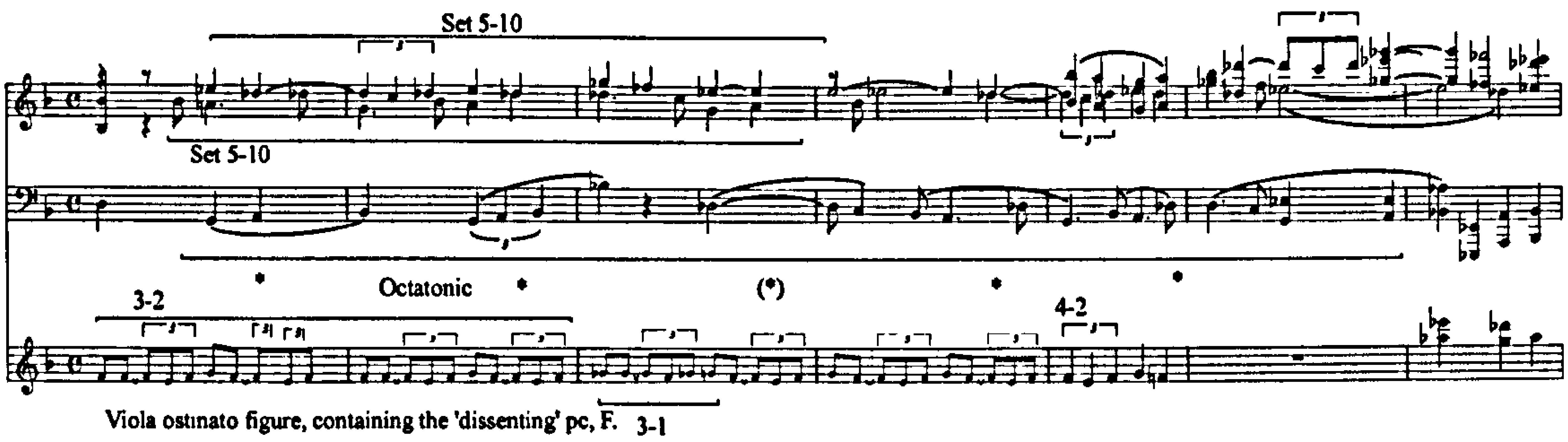

Fig. 5.7: *Nie ward ich*, bars 12-17, pc-sets

The total content sets (see Example 5.7) show that the octatonic collection does appear in its entirety in bar 17, just before the beginning of the cadence. Therefore, as expected, the respective octatonic genera unequivocally dominate the summary of genera systems in Example 5.8 and 5.10, and their reduced matrices are shown in Example 5.12.

iii) Section 3.

The free variations of the α and β motifs which dominate the first part of this section suggest that examination from a pc-set perspective be used to examine the passage for consistency.

The segmentation reveals a number of correspondences. Set 7-11 is formed by both second clarinet (bars 21-24) and oboe (bars 23-24), which articulate distinct melodic ideas. However, more interesting is the prevalence of 4-8 (the set of the α motif) as a cell within some of the linear phrases. The first two of the three successive instances in the cello line (bars 21-25) interlock to form symmetrical set 8-6 [0,1,2,3,5,6,7,8], while the first three notes of the third (C♭, B♭ and E) join this collection to form an 11-note chromatic row before any pitch is repeated. The remaining A♮ is immediately articulated in the oboe part (bar 25).

Nevertheless, these correspondences are perhaps not as comprehensive as found in some of the other works discussed in this study. The comparison of pc-set genera is also somewhat ambivalent, in that, just as in Section 1, there is conflict between diatonic and chromatic-type genera.[14] Here the conflict is epitomised by the Fortean genera system, in that both G5 and G11 ('chroma' and 'dia' genera respectively) have the same Squo score, although the former succeeds over the latter because of its single singleton. As might be expected when comparing the pc-sets which hit against two dissimilar genera, the two are focused on separate groups of pc-sets, although there is no particular distribution between contextual factors such as melodic/harmonic domains, or one section as distinct from another section. The PGS, however, offers a higher set of Squos, and its view of the segmentation is preferred here.

iv) The remaining sections

The recapitulation of the Σ and δ motifs in the first part of Section 4 (a semitone higher, at T1), is based upon the octatonic scale, as was in the case of their earlier instances in Section 2. But in this case the 'dissenting' pc (in this case F♯) is emphasised in that it forms the bass note of the augmented triads and appears in the same line as a passing note within the intervening diminished-sevenths (see, for example, bar 39). The juxtaposition of vagrant chords (the augmented triad and the diminished-seventh) in bars 39-40 is uniquely non-tonal, but the diatonic context as presented by the material which immediately follows, together with the fact that the three-note scalar figures span the chord-notes, suggests that the non-tonal vagrants form an instance of roving harmony, rather than are structurally pervasive as is the case in the similarly constructed α motif in *Voll jener Süße*.[15]

v) Pc-set genera summary

Fig. 5.8 shows the summary of pc-set genera in *Nie ward ich*. The pc-set analysis has been significantly less conclusive in this work than in any of the previous studies, as can be seen from the ambivalence of both Sections 1 and 3 in respect of chromatic- and diatonic-type genera, suggesting a somewhat inconsistent underlying harmonic species. On the other hand, the identification of the octatonic genus underlying both motivic structure and harmonic species in Section 2 (and again in Section 4) demonstrates a more progressive character of harmonic species, in which symmetry and a focus on intervallic structure is evident. The other factor which is of

14. It is perhaps interesting to note that the hybrid genera system created for Section 1 is not particularly illuminating when applied in Section 3.

15. The context of the α motif of *Voll jener Süße* is discussed more fully below.

interest, in terms of the overall study, is the emergence of the 7-35/34/32 genus (the extended diatonic genus) for the first time, as a supporting genus.

Section	Key genera	Alternative	Supporting Genera
Section 1	G5 (chroma) 7-35+ (diatonic)		7-35/34/32 (extended diatonic)
Section 2	4-28+ (diminished seventh) Octatonic	6-Z13 (from K*/Kd genera)	6-Z19/44 (signature)
Section 3	7-35+ (diatonic) Chromatic		7-35/34/32 (extended diatonic)

Fig. 5.8: ***Nie ward ich*****, summary of pc-set genera by section**

D) Conclusions

The complexity of motivic variation as presented in the context of the principles of sequence and imitation points to the experimental nature of this work. In general, however, the regions are reasonably well articulated, with a tendency for regional articulation to be more clearly directed as the song progresses. An unusual aspect of the regional articulation in this *Lied*, in comparison with the others studied so far, is the large number of chord progressions between chords with roots a fifth apart, although such progressions tend to operate around cadence points, underlining the fact that the notion of ascending progression still exerts an influence on the articulation of the phrase.

The post-tonal perspective offers a significant observation in respect of the δ and Σ motif-forms and the octatonic content of Section 2, although the underlying principle (i.e. pc-set analysis) does not offer categorical characterisations of the rest of the work. Indeed, it might be concluded that *Nie ward ich* remains one of the more fragmented examples of Schoenberg's late tonal style, with no particular structural principle asserting itself.

i) An interpretation

The interpretation of the text in terms of this analysis is also made difficult by the nature of the text itself, in that its intensely personal and emotive content is not conducive to an unequivocal reading. One possibility is that the poem is addressing art itself, a self-critical property of many of Petrarch's sonnets.

Schoenberg's commitment to a life as a composer was threatened by his inability to maintain financial security, and his single-mindedness fuelled by self-belief in what might be termed his 'modernist convictions' was obviously playing a significant role in undermining the success of that endeavour. A year earlier (summer 1903) he had returned to Vienna from Berlin where his time at the *Überbrettl* had brought very limited recognition, and he had spent the year seeking to establish himself as a teacher and composer, as well as making various attempts to secure grants and pensions. It was already clear that his more serious and adventurous music would not bring the immediate acclaim that performances of *Verklärte Nacht* had suggested.[16]

In its use of motif, developing variation, and sequence *Nie ward ich* represents the adventurous side of Schoenberg, despite the suggestion that Sections 1 and 3 comprise conservative harmonic species (as illustrated by the detail of the pc-set genera analysis). Motif had acquired a degree of independence from harmony (as exemplified by the sequences cited that are not aligned to a harmonic patterning), and it is clear that his compositional experimentation extended to the use of scalar constructs such as the octatonic, and intervallic relations to connect thematic constructs (as illustrated by the pc-set relations between δ and Σ).

Perhaps therefore, Schoenberg realised that a metaphor for his dilemma existed in the text of *Nie ward ich*, and that tonality (representing the only harmonic system in existence at the time) itself could be regarded as (1) the object that he 'had never tired of wooing'; (2) the object for which he would prefer death than to be held responsible for its demise; (3) the object that he would continue to serve faithfully with love in its new role; and (4) the object which would never win through vengefully, given his diligence and devotion.

The regional structure points to the overall framework of a tonal system, generalised and 'developed', and still influential. Yet the intense motivic structure provides the resolve to underline the independence from tonality's influence, while the emergence of constructs such as the octatonic offered alternatives which reshaped his relationship with tonality.

In any case, one can conjecture at the very least, that the lack of structural clarity in Schoenberg's setting is paralleled by the unclear nature of the text's portrayal of the poet's uneasy relationship with his object.

16. See Stuckenschmidt 1977: 78.

Analysis 6: Op. 8 No. 5, *Voll jener Süße*

The autumn of 1904 saw the composition of *Voll jener Süße*,[1] a second Petrarch setting which, like *Nie ward ich*, is an orchestral setting that is closer in style to the orchestral textures of *Pelleas und Melisande* than the more intimate *Lieder* for voice and piano of 1903-4. The text of *Voll jener Süße* describes the poet's apprehension of a vision, the momentary perfection and rapturous ecstasy of which becomes an obsession ('my spirit's gaze is totally engrossed in her'). The octave describes the ecstasy and impact of the vision, while the sestet sets a scene of peaceful quest, contemplation and finally the recall of the memory of the momentary vision.

As described in the harmony section below, the relationship between the *Grundgestalt* of *Voll jener Süße* and the *Tristan* chord is strongly evident, suggesting, if not the identification of the *Tristan* chord with the momentary vision, at least a potent allusion for Petrarch's idea.

A) The motivic structure

Although developing variation still pervades the construction of *Voll jener Süße*, its use is less comprehensive than in *Nie ward ich*, and the use of motifs as recurring thematic elements in which recurrences exhibit minor variation, is common. These techniques were observed more frequently in *Verlassen* and *Natur.* Example 6.1 shows the derivation of the four motif-forms from the *Grundgestalt*, while Example 6.3 traces the instances of the motifs in the score. The following discussion will initially focus on the introduction, examining how its properties are echoed throughout the work.

i) The opening as *Grundgestalt*

On account of its recurrence throughout *Voll jener Süße*, the four-note descending figure with which the *Lied* opens has been labelled the α motif. Characteristically, the scalar figure comprises a successive interval structure of '1-2-1' (the symmetry of which underlines its octatonic character) and, like the α motif in *Nie ward ich*, it occurs frequently in conjunction with, if not simultaneously with, its own retrograde. At the opening its harmonic context is the half-diminished-seventh chord, and together with its retrograde, it spans the major third between the fifth and seventh of the chord. Within the *Gestalt* in bars 1-2, an additional truncated form of the motif can be identified (viola part), that also occurs simultaneously with its own retrograde in the

1. *Voll jener Süße* is Sonnet No. 116 from Durling's translations (Durling 1975).

cello (bar 1), and its span of the minor third between third and root thus mirrors the 'playing out' of the fifth and seventh in the other parts. Thus the half-diminished-seventh sonority of the opening can be divided into a component minor third and major third (respectively E♭/G♭ and A♮/ D♭) each of which is independently and successively played out in the manner of a voice exchange through the α motif. As a harmonic phenomenon neutralised of tonal association, the half-diminished-seventh itself is reiterated at a new pitch-class level (transposed down a minor third) during the course of the A♮/D♭ exchange. Two pitch-classes are retained throughout this reiteration. A third half-diminished-seventh sonority occurs (bar 4), which is a tone lower than the original, and although no α motif articulates components of the chord, the melodic element D♭-F♭ draws attention to the root and third (the constitutive elements of the truncated α form). This, too, is followed by an instance that is a minor third lower (bar 10), in which these two pitch-classes are retained and form the basis for the β motif.

These relations, in particular the significance of the minor third as a prominent 'transposition operator', may be described by using Lewin's principle of Generalised Interval Transformations.[2] The transformation T9 (transposition upwards by nine semitones under octave equivalence) forms a basis for the passage, and in combination with its complement T3, is foregrounded in certain horizontal details, as shown in Fig. 6.1 (after all T3 corresponds with ic3, a key interval within the half-diminished-seventh in its abstract form). These include the relationship between the two semitonal pairs in the main α motif, the relationship between the roots over the first two beats of bar 1, the range of the double bass motif in bars 1-2 (the notes inverted simultaneously by the viola), and the interval spanned by the initial β motif. The matrix in Fig. 6.2 shows the transposition relationship between the four iterations of the half-diminished-seventh chords.

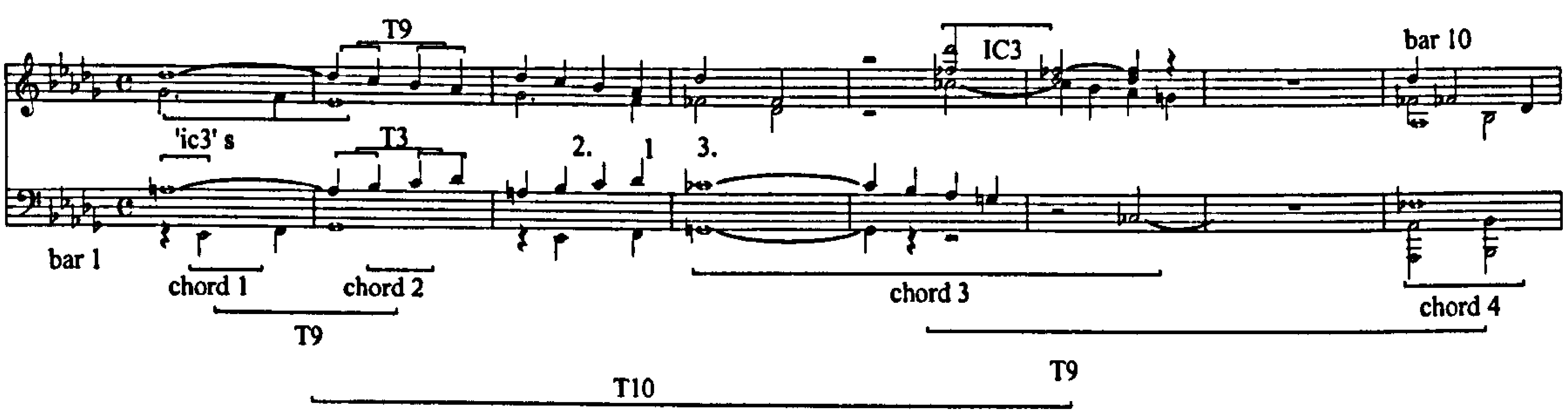

Fig. 6.1: *Voll jener Süße*, opening - transposition levels as motivic features

2. See Lewin 1987.

	To chord 2	To chord 3	To chord 4
From chord 1	T9	T10	T7
From chord 2		T1	T10
From chord 3			T9

Fig. 6.2: *Voll jener Süße*, matrix of transposition levels between chords.

However, it is the transformation T10 which governs the relationship between introduction and the beginning of Section 1 that has more widespread ramifications in that it projects the internal structure of the *Grundgestalt* (Chords 1 to 2) onto the relationship between the anticipation of β in the introduction and the entry of the vocal part. Moreover, the transformation is extended within the interlude (bars 41-49), a section which corresponds with and recapitulates the introduction. As at the opening, T2/T10 governs the relationship between chords 1 and 3 but also dictates the relationship between successive iterations of the truncated β motif which follow in bars 44-49, alongside the iterations of α (bars 41-3, 44-5 and 45-6).[3] One could also attach to this the T10 relationship between α motifs in the final conclusion (bars 83-86 and 87-95). On a more general level, the harmonic analysis below will confirm that T2/T10 represents the transformational relationship between the two central tonalities (C♯ and B), and it also governs the relationship between successive instances of the thematic motifs (that is, the two instances of β, δ and Σ motifs within Part 1, recalled in Part 2, are associated by T2/T10 in each case).[4] In this way the transformations which operate at surface level at the opening can be regarded as fulfilling a more 'global' function in the context of the whole, underling the coherence of that whole.

Finally, returning to Fig. 6.2, the roots of each of the half-diminished-sevenths (which indeed reflect the transposition operators highlighted here) form the group of notes, E♭, D♭, C and B♭, which abstractly represents an alternative scalar tetradal component of the octatonic scale.[5] The

3. One could also point out that the chord with which the section closes in bar 48-9, fulfilling the function of cadence, given the dynamics, phrasing, and neutrality of its pc content, is a whole-tone chord, i.e. its pc-set generates an interval vector in which ic2, the interval component of T2/T10, is maximised.

4. The instances of the β motif referred to here are those articulated by the vocal line in bars 25-29 (the first of which is at the same level as the original instance in bar 10). It is also evident in the successive instances of the inverted β motif in bars 32-34 (see Example 6.3).

5. That is, alternative to the four-note figure presented by the α motif. Like the α motif itself, it comprises alternating tones and semitones between successive members. To put this into pc-set terms, the transformation operators, operating on a single note, generate the set [0,2,3,5] - set 4-10 - because T2(0) = 2, T3(0) = 3 and T5(0) = 5 (or T10(0) = 10, T9(0) = 9, T7(0) = 7 and the set [7,9,10,0]

use of the octatonic scalar construct, and further usage of the transposition operators discussed here, will be monitored during the analysis to examine to what degree their prominence in the detail of the opening is reflected in the larger scale processes of the whole, and the issue will be re-examined in the conclusion.

The intervallic consistency of the opening, and its implications for the music which follows, suggests that the first two bars in their entirety be considered the *Grundgestalt* for *Voll jener Süße.* The fact that the relations considered here have no allusion to tonal constructs, underlines its independence from tonal-harmonic considerations, in terms of the internal coherence which pervades the opening.

Example 6.1 in Vol. 2 shows how the motif-forms β, δ and Σ may be derived from the *Grundgestalt.* The β motif is based on motif feature 'y' which emerges from the truncated α motif (motif feature 'x'). In the same way as G♭ and E♭ represent the notes sustained between the first two half-diminished-seventh chords, D♭ and F♭ are sustained through the second two chords, thus forming Motif β. The addition of the third note of β produces the notes of three-note motivic feature 'x'. The δ motif also makes use of the motif feature 'y' from the original *Grundgestalt*, recalling its original pitches, while a further reference to 'x' recalls the notes of the initial α in the *Grundgestalt.* Other relationships are indicated on the example.

ii) The motifs

This section will trace the presentation of the four motifs in *Voll jener Süße*, before drawing some conclusions regarding structure and developing variation. The instances of the motifs can be traced in Example 6.3, which shows an annotated score.

The α motif

Instances and variations of the α motif (such as in the bass part in bars 9-11) can be distinguished from the recurrence of instances of α which, like at the opening, appear in conjunction with the simultaneous articulation of an inverted form. In such cases, the symmetrical interval structure of the α motif (i.e. the alternating tone and semitone) is complemented by its association with vagrant harmonies in that, as at the opening, it spans the major third between two of the harmony notes. The other examples include the third and fifth of the minor dominant-seventh

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is of the same pc-set class as [0,2,3,5]). This pc-set like 4-3 [0,1,3,4] is a member of the octatonic – 8-28.

(bar 17 - although the chord changes before the motif is completed), the third and fifth of the augmented triad with added seventh (bar 79), and although an instance in the postlude (bars 83-84) is framed around the third and fifth of a minor triad (C♯ minor), the chord changes to a half-diminished-seventh (in a manner which recalls the opening) by the time the motif is concluded.

The variant in Section 5, in which the internal interval structure is adjusted to span a fourth, (in bars 50-51 and 57-58),[6] has a diatonic context, yet is immediately followed by an instance of the original form (bars 52 and 59). Likewise, at the conclusion of the song (bar 78), an altered form of the α motif, spanning the root and suspended third of a 4-3 suspension, is followed by its original form (at the same pitch) as mentioned above (i.e. spanning a third within an augmented triad with added seventh).

The following table in Fig. 6.3 shows the main instances of α (in which the motif is presented in counterpoint with its inversion) from throughout *Voll jener Süße.* Although number 3 has been listed, its italicisation underlines the fact that it represents other structural processes (that is, it is part of the recapitulation of the opening). The table suggests that each new instance represents a T1 of the previous, a curious latent process which has no clear external explanation. The ic3 span between the D♭ at the opening and E♮ at the conclusion, perhaps relates to the importance of T3 and ic3 at the opening.

No.	Bars	Pc level	Span	Section
1	bars 1-3	D♭	D♭-B♭	Opening introduction
2	bars 17-19	D♮	D♮-B♮	Section 2
3	*bars 41-43*	*D♭*	*D♭-B♭*	*Interlude (recall of opening)*
4	bars 50-53	E♭	E♭-B♯/C♮	Opening of Part 2 (Section 5)
5	bars 57-59	E♭	E♭-B♯/C♮	Section 5
6	bars 68-69	E♮	E♮-C♯	Section 7 (hidden version)
7	bars 78-79	E♮	E♮-C♯	Conclusion, Section 7
8	bars 83-86	C♯	C♯-A♯	Postlude

Fig. 6.3: *Voll jener Süße*, the key instances of α, in conjunction with its inversion

Given the establishment of the 'diatonic α' in Section 5, it is possible retrospectively to discern other instances of this form (such as at bar 11-12 and 25-29) and these have been noted in Example 6.3. The α motif and its diatonic forms permeate the vast majority of the texture of *Voll jener Süße*, with just two sections in which it is absent (bars 72-77 and bars 80-82).

6. The retrograde of this α motif appears simultaneously in the Viola/Second Violin, but has an added middle note (C♯).

The β and δ motifs

The β motif is a thematic motif, given that its recalls seldom deviate from its first appearance as the initial melody of the vocal phrase. Its tendency to articulate a cadential chord progression, in which either a dominant-seventh or the chord on the leading-note is followed by the tonic (as at bars 10-11, bars 23-4, 25-6, and 70-1), is confronted in Section 5 (bars 50-53) by the reversal of the chord progression with the dominant following the tonic.

The imitative sequence of β motif-forms between cello and vocal line underpins the beginning of the third section (bars 23-28), although the harmonic analysis does not indicate a sequential patterning (such as, for example, a cycle of fifths) in terms of the harmony. Note that T2 governs the sequence in the vocal part, as mentioned earlier. A succession of inverted forms of β follows in Section 4 while, in Section 5 (the first section of the second part), the motif's interval content is altered alongside that of the α motif, in accordance with the variation of α, such that it suggests the region of E♭ *major*. Just as the α motif is followed by its 'correct', original version in the ensuing passage, the original form of β duly follows.

The prevailing context of the thematic δ motif is that of an occasional appendix to the β motif, the transposition levels of which it follows on each occasion. Based around the minor triad, it tends to perform a role of sustaining a triadic harmony, and its structure adapts to the chord of the prevailing scale degree.

Motif Σ

The Σ motif, which is also a 'thematic motif', might be said to frame the formal structure in the song, in that it marks expository and recapitulatory sections of the *Lied* bringing about cadence within its span. Its thematic status is underlined by its association, on each of its three instances, with the text that depicts the gaze of the poet.[7] In the octave, its prime form (bars 14-17) which concludes the exposition-like Section 1, is followed by a similar functioning instance (in which the anacrusis is omitted, and its pitch-class content has been raised a tone) that brings about the conclusion to Section 2 (bars 20-23), while reiterating the T2 transformation which prevails

7. See Holzer 2000: 80. Although this works to some degree in respect of the association of Motif Σ with the object of the 'gaze' (that is with the beauty of the beloved in lines 2 and 4, nature as substituted object in line 12, and perhaps even that which is painted by the poet's '*Geist*' in line 14 which is also associated with a Σ instance), this type of *leitmotivic* association is not so clear in respect of the other motifs.

within the motivic structure. In the sestet (Part 2), its recall at the original pitch-level in Section 6 (bars 64-68) is anticipated by a T8 form, with which it forms a canon. The T2 form is also recapitulated alongside δ in the following section (bars 74-77).

Motif-form Σ is characterised by two elements: (1) a 7-8 suspension on the first beat of the two central bars of its span which effect a chromatic ascent through a minor third; and (2) an instance of the α motif-form within the bass-line, although the temporal vicinity and transpositional relation is different on each occasion. The major seventh span of the β motif defines an anacrusis of the Σ motif which does not always appear. The relationship is made explicit when the altered β motif-form appears in bar 50 (and 57), showing its initial three notes to be a transposed retrograde of the first three notes (or anacrusis) of the Σ motif.

iii) Motivic usage

Although developing variation underpins the way in which the motifs can be derived from the *Grundgestalt* (which itself is based on Motif α) as described above, the overall use of motif in *Voll jener Süße* is much more thematic than in *Nie ward ich*, with the themes of motifs β, δ and Σ articulating sectional structure (see the diagram in Example 6.2). Developing variation, therefore, is much more limited in its scope than in the other *Lieder* discussed hitherto, with variations tending to be variants (in the sense of the description in *FMC*) rather than representing a 'development' of the motivic material into new motivic forms. On the other hand, the introduction demonstrates an underlying sense of transformation of its components (motivic or harmonic), which corresponds with other processes within the work. Although this is not 'developing variation' in terms of the definitions examined in Chapter 2, it can be deemed part of the overall sense of coherence which prevails.

To summarise, the sectional structure in the octave, the introduction and first section present the four motif-forms. The second section successively juxtaposes a variant of the *Grundgestalt* with the truncated Σ motif while Section 3 comprises a canonic presentation of β, in which the points of imitation are in the orchestra and voice parts. The fourth section aligns the inverted β form with variants of α. The focus of the interlude is a central climactic recapitulation of the *Grundgestalt* which retains its original shape, although the intimate timbre of bars 1-4 is replaced with a full orchestral *tutti*. Successive instances of α form the basis of the scalar constructs which, moving in contrary motion, form the anacrusis of this recapitulation.

The first section of the setting of the sestet, (Section 5) is based on the simultaneous presentation of α and β in a new harmonic context which, as will be suggested in the harmonic analysis, is more diatonic than their contiguous presentation in the introduction and Section 1. The remaining sections comprise recalls of the thematic motifs Σ, β and δ at the pitch-class level of their original instances in the octave, and in their original harmonic contexts, although the ordering of their recalls differ. The postlude, based on the α motif-forms, presents the *Grundgestalt* (and truncated β motif) in alternating major and minor modes, and the texture gradually fades away somewhat inconclusively.

Thus the motivic analysis presents a comparatively conservative use of motif, in which the manipulation of thematic motif-forms amid the reiterated and varied α motif offers a sense of coherence while articulating a formal structure that has roots in the nineteenth-century, given its sense of exposition, 'development' and recapitulation. Likewise, the harmonic process which underpins this structure is dominated by ambivalence towards nineteenth-century practice and a more modernist approach, and this will form the focus of the next two sections. Evidence of developing variation, however, is restricted to the derivation of motif-forms from the *Grundgestalt*.

B) The harmonic perspective

Schoenberg cites *Voll jener Süße* as an example of his notion of 'suspended tonality' in *HL*, observing that it 'wavers' between the regions of D♭ and B major.[8] In the following, these regions will be monitored but, as will be evident, there are other regions which have been highlighted. In view of the fact the work finishes on C♯, this region will be regarded as that around which the regional system is based. An initial section will focus on the relationship between the opening and the *Tristan* chord, followed by a section-by-section discussion of the regions.

i) Voll jener Süße and *Tristan*

The significance of the *Grundgestalt* to the structure of the work extends to the harmonic domain as well. The harmonic basis for the four simultaneous instances of the α motif (in bars 1-2) is the 'half-diminished-seventh' chord. Where an augmented triad intercedes during the first voice

8. Schoenberg 1978: 383. It should be noted that Schoenberg makes no mention of which (if any) should be regarded as the 'principal tonality'.

exchange in bars 1-2,[9] the second voice exchange (bar 2) renders an additional half-diminished-seventh, the root of which is a minor third lower. The half-diminished-seventh was known to Schoenberg as the '*Tristan* chord'.[10] Indeed, the chord on beat 2 of bar 1 can be derived from the *Tristan* chord by displacing the violin and bass parts an octave lower and higher respectively, and transposing the whole down a tone. But only one of the four notes (the D moving to C♮) progresses in the same way as its counterpart in *Tristan* Act 1. The opening to Act 3 of *Tristan*, however, which also begins with a *Tristan* chord is a more likely source where, as here, it emerges from a solitary minor triad (see Fig. 6.3 below).

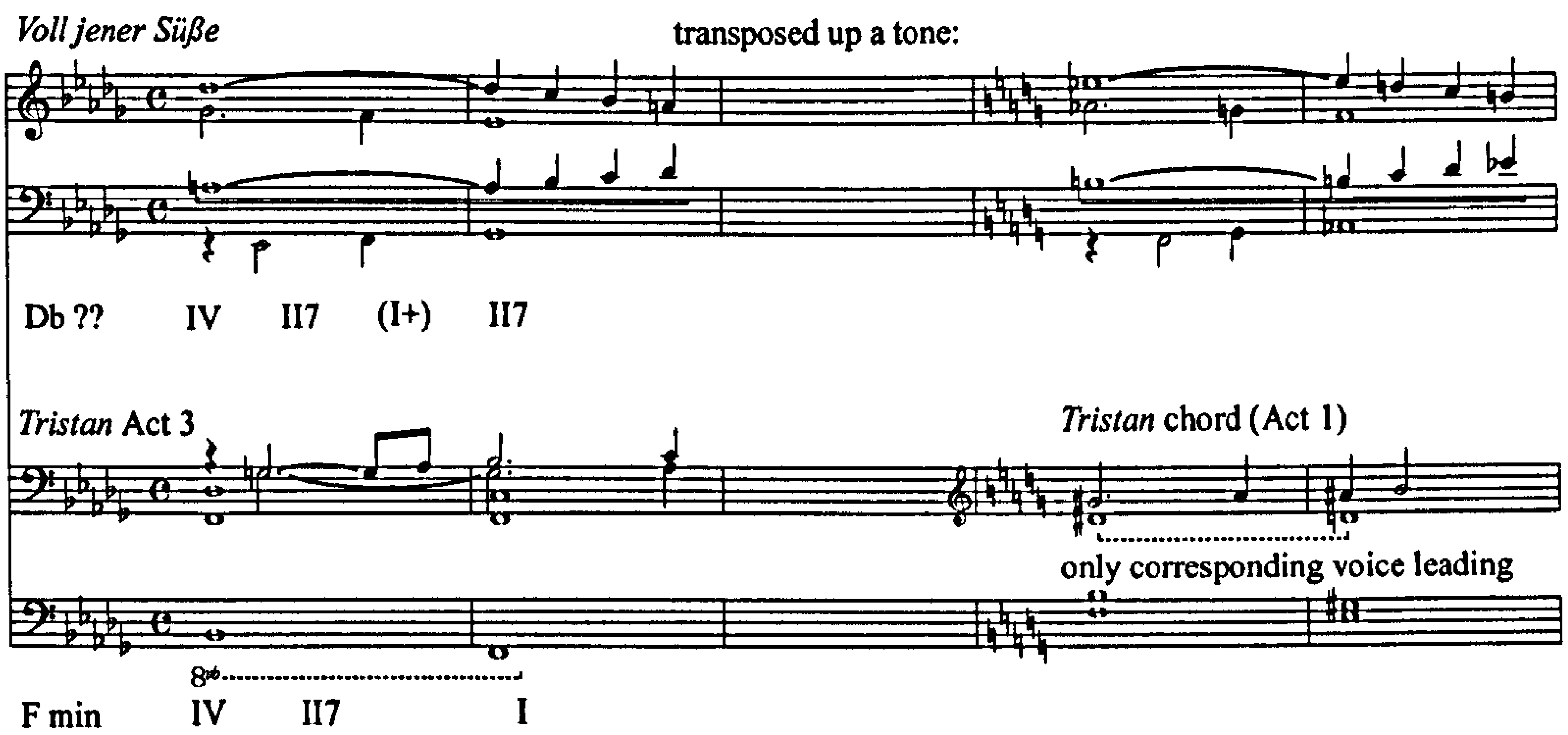

Fig. 6.3: *Voll jener Süße* and the *Tristan* chord

The harmonic context of the chord in Act 3 offers less of a paradox in terms of harmonic function than that of Act 1, and it could be argued that it informs Schoenberg's own interpretation of the Act 1 chord, which he classifies, perhaps controversially, as supertonic in the context of A minor.[11] In accordance with this, recall from Chapter 3 that he also discusses the half-diminished (as the 'other vagrant chord') describing its function as either supertonic (as in his analysis of *Tristan*) or leading note.[12]

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9. See Schoenberg 1978: 258. Musical example No. 90 comprises a set of chords which appear one way or other within 'the music of Wagner'. The last progression appears to correspond with the current one from *Voll jener Süße*.

10. Schoenberg 1978: 257.

11. Schoenberg 1954: 77. Note that Schoenberg is assigning the function to the Tristan sonority itself, which is on the first beat of the bar, and not treating the G♯ as an accented passing note.

12. See Chapter 3: 64.

Returning to the opening of *Voll jener Süße*, one could classify the initial half-diminished-seventh with root E♭, as the supertonic within D♭ (with the augmented triad that intervenes acting as a kind of tonic-functioning augmented triad)[13] while the second half-diminished-seventh chord in bar 2 (with root C) is the leading-note seventh of D♭. While this initial sequence of chords provides an unconvincing tonal syntax in D♭, the re-ordering of the chords in bar 3 is much more persuasive: that is, a subdominant moving to the dominant ninth without its root, before progressing to an altered tonic. Moreover, the following chord in bar 4, a half-diminished-seventh with a D♭ root in bar 4, is in fact the supertonic of B major and, looking forward to bar 10, the next new half-diminished seventh provides the leading-note chord of B major, to which it duly leads in bar 11. Therefore, to summarise, this reading suggests that in the first 12 bars of the song, Schoenberg adopts the two diatonic functions that he prescribes for this chord type, in *each* of the two keys between which he says the work wavers.

ii) Section 1

The conflict between regions around C♯ and B (i.e. between the tonic and its '♭MD' region) in the introduction finds affirmation of the latter in the first part of the first section, with the harmonic cadence to I of ♭MD in bar 11 (See Example 6.3, Vol. 2).

The VII-seventh chord (a half-diminished-seventh) in bar 10 which leads to I in the region of B major across the bar-line (bars 10-11) is given greater clarity in the recall of the passage (bars 70-71), where the prominent dominant ninth (upon which this half-diminished-seventh is based), moves to its tonic, B. The raising of D♭ to D♮ at the end of bar 10 enhances the voice-leading by creating a diminished third which resolves (as would an augmented-sixth) to the third of the temporary tonic in bar 11. It is a similar augmented-sixth which assists the progression to B's enharmonic mediant, E♭, in bars 14-15, where A♭ and F♯ converge on G♮, the third of the new chord. The mediant doubles as the subdominant of B♭ minor which predominates during the ensuing bar. The following progression to G minor (bars 16-17) is, however, less conventional. Schoenberg himself describes roots falling a third as being a 'strong progression' and indeed, III–I cadences are deemed analogous to V-I cadences on account of their leading-notes.[14] However, the leading-note is flattened in deference to the minor tonality of G, and therefore cannot 'lead' to the tonic. Nevertheless, the D♭ of the B♭ minor chord does rise to D♮, while the fleeting A♭ (the

13. Recall that there was considerable support for a tonic-functioning augmented triad in the first section of *Nie ward ich*. The 'triple' entendre served to articulate the regions of the whole.

14. Schoenberg 1978: 117 and 134.

seventh of the B♭ minor chord) falls to G, the pcs common to both chords (F and B♭), anchoring the progression. This voice-leading thus facilitates a progression which can only be explained in terms of the mixture of one or other of the two components.[15]

iii) Section 2

The first vocal articulation of the α motif, which marks the beginning of the new section, also testifies to the harmonic versatility of the motif. The G minor seventh chord of bar 17 gives way to an E major-based articulation of the motif, with chromatic voice-leading again facilitating a progression which is difficult to characterise functionally. The harmonic independence of the α motif contrasts with the ensuing instance of the Σ motif (bars 21-23), the harmony of which is identical in function to the previous instance in bars 15-17. From the viewpoint of B major, this region (the supertonic's submediant major overall) is its Neapolitan, established through chromatic voice leading (bars 20-21),[16] yet the swift regional shifts, such as the following return to B major in bars 23-24, suggest a juxtapositioning of distinct regions rather than an integration of one into the other.

iv) Section 3

This section, initially comprising transpositions of β, recalls the initial harmonic context of that motif, articulating a cadence in B major, before the whole is transposed up a tone to a C♯ level, a further illustration of the B–C♯ oscillation The complex texture, which includes another pair of successive β motifs in the bass line in canon with those of the vocal line, clouds this process somewhat, but the relation to the passage in Section 1, bars 10-13, is clear. This reference is enhanced by the fact that δ follows the second instance of β at the same C♯ level, although the harmonic context contrasts the original instance.

The passage in bars 28-32 is dominated by ascending fifth progressions, where each chord becomes a seventh moving either to the root a fifth higher, or in the manner of an interrupted cadence to the root a step higher, with the eventual goal a somewhat temporary D chord (bar 32) which is quickly replaced by its relative minor, B.

15. Either, G minor is the relative minor of B♭ major (which shares the same dominant as B♭ minor), or B♭ minor relates to B♭ major through mixture, which in turn is the relative major of G minor. See Schoenberg 1978: 207-208.

16. An explanation could also be found in Schoenberg's own argument concerning the means of classification of function in respect of the diminished-seventh chord. See Schoenberg 1978: 199, Ex. 141a. Here, System 2, bar 2 (III-IV) shows an instance which seems to correspond with the bars 20-21.

One can explain this, moreover, by noting that, just as the region of B major was 'interrupted' by its Neapolitan in Section 2, so the prevailing C♯ in this section, established by the strength of its V7 in bar 30, is briefly interrupted by its Neapolitan in bar 32, while the following bars in Section 4 reassert C♯'s status in the context of the B major upon which the setting of the octave ends.

v) Section 4

This section, dominated motivically by variants of the α motif and the inversion of the β motif, is underpinned harmonically by the conflict of the regions around tonic C♯ and its 'rival' B major, and provides a useful illustration of how Schoenberg constructs the conflict between the regions.

The passage from bars 32-37 is dominated by three important harmonic factors which govern the regional structure. The first is the immediate return to C♯, after the interruption that had moved in the direction of D in bars 32-3 discussed above;[17] thus C♯ can be discerned at the end of bar 32 and midway through 33. The second element is the prominent F♯ triad which occurs in bar 35, while the third is the strong assertion of B major underlined by a double suspension at the end of the section, in bar 37. The three elements provide a straightforward background which is diatonically comprehensible as II-V-I, in the region of B major, as indicated by the Roman numerals in Example 6.3.

There are two significant harmonic events which merit detailed attention on account of their chromatic voice-leading detail, and the illustration they provide of the referential aspect of Schoenberg's theory of region. Firstly, interposed between the components of the V-I cadence in B major (bars 35 and 37) is the A♭ (G♯) seventh chord at the beginning of bar 36, which can be regarded as the dominant of C♯, the region which the previous section asserted, echoed in bars 32-34. The spelling, however, points to a *double entendre*, as the augmented-sixth (A♭/F♯) resolves to a G that supplements the C-E-B♭ chord on beat 4, which as B's Neapolitan moves directly to B (again through an augmented-sixth – B♭ [or A♯] and C).[18] The chromatic voice-leading therefore facilitates the entire progression, and softens the stark juxtapositioning of the two regional dominant-sevenths in bars 35 and 36.

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17. Of course, the D functions as both Np of C♯ and as relative major of the tonic minor, in relation to the B major which predominates.

18. It does this rather elegantly by assuming the character of a French sixth, in that it comprises the notes C-E-F♯-B♭ (with F♯ suspended, in the manner of a 4-3 suspension, by the aforementioned G), which is a *double entendre* that can be reinterpreted as dominant of B, or potentially dominant of F.

The second detail of Schoenberg's use of chromaticism is focused on bar 34. Although C♯ is firmly established through bars 32 and 33, in bar 34 it appears as root of a seventh chord, undermining its own regional predominance. The G♮ and E♮ imbue the chord with a 'half-diminished-seventh' structure, suggesting a functional interpretation as a potential supertonic in the region of B, and removing the sense of the C♯ region previously established. The ensuing seventh chord is based on F, which is enharmonic of E♯, the mediant of the region of C♯ (that may be regarded as the link between the two). However, this F7 chord has a raised third and flattened fifth (the latter sustained as the seventh of the C♯ chord), and its 'quasi French sixth' structure allows it equally to function as a B7 chord, or F7 chord, or as a French sixth in the regions of F or B.[19] The ambiguity is made explicit by the juxtapositioning of both roots, F and B, in the bass part, (the latter a clear reference to the region which follows) with the augmented-sixth between B♮ (C♭) and A resolving (and effecting the progression) to the third of the following F♯ chord, dominant of the region around B. In this way, the progression between C♯ and B (which after all could have easily been made through a fifths cycle) is imbued with a chromaticism that simultaneously removes the sense of C♯ as the overall tonic, and prepares the secondary dominant (i.e. the dominant of B major) while still referring to the tonic of that new region.

vi) Interlude

The first part of the interlude, which leads to the climactic return to the α motif as it was presented at the opening, is dominated by successive α motif components (in which their simultaneous iteration with their inverted counterparts refers to the structure of the *Grundgestalt* itself). The ascending elements can be combined to generate an octatonic scale, although this is not echoed by the descending α motifs, pointing to the independence of parts in deference to the harmonic structure. The graph in Example 6.3 suggests that this is initially indicative of the B major region with which the first part concluded, with bar 40 preparing the return of the region based upon D♭ through a G major triad and D♭'s relative minor, B♭ minor. This particular association recalls the transitional passage in bars 16-17.

19. That is, by allowing either the F and D♯ (E♭) to act as an augmented sixth that resolves to E♭, the leading note of F (in the manner of the augmented-sixth chords in *Traumleben*) or for the A and B♮ (C♭) to act as augmented sixth and resolve to A♯, the leading note of the dominant of B major (or minor). The latter option is used in the current example.

The conclusion to the interlude resists harmonic analysis based on chord classification. The first deviation to the pattern set by the introduction occurs when the truncated β motif moves down a step to a B level, at a point where the bass part articulates a descending α spanning A to F. This particular sonority (F-A-B-E♭) recalls the reiterated French sixths noted in Section 4 (bar 32). Directly following this, bars 47-48 appear to suggest the D♭ region through the bass-line's ascent from D♭ to G♭, and the triadic articulation of D♭'s dominant, A♭ on beat 3 of bar 47. The concluding sonority can be classified as an augmented triad with seventh in the bass, the root of which is also A♭. Despite these connections, the cadence is achieved largely through the augmented rhythmic variations in the bass part which slow the overall rhythm, the reiteration of the α motif, and the whole-tone character of the last sonority.

C♯ (D♭) immediately follows as a single note in the bass line, and although there appears to be little connection between this and the new section, the F♯/Ab in the lower parts may be interpreted as an augmented-sixth which prepares the third of the E ♭ tonality in bar 50.

vii) Section 5

Section 5, which begins the setting of the sestet can be divided in two, the second half of which is a closely related variant of the first. The first four bars, in which the orchestral part is based upon simultaneous articulations of α and β, is the most diatonic passage in the *Lied*, articulating the region of E♭ major (♭MD) followed by its relative, C minor (see Example 6.3, Vol. 2).

By contrast, the ensuing passage at bars 54-55 evades chordal classification. A linear examination finds that each of the lines forms part of a C minor or E♭ major scale: the upper woodwind articulate the second tetrachord of C minor; the violin and viola parts form the first tetrachord of C minor, and the main beats of the lower woodwind (which are effectively transposition levels for α derivatives) articulate the second tetrachord of E♭, leading to E♭ itself in bar 56. Meanwhile, the vocal line hovers around the pitch-class C♮. The resulting harmonies do not always articulate unequivocal roots, and where they do, they do not associate with one another to form a harmonic syntax which coheres. That is, even if one were to argue, for example, that the viola line provided the roots, they would simply ascend a scale, suggesting a series of 'super-strong' progressions with roots either a tone or semitone apart. Therefore, although the lines articulate C minor/E major, the verticals do not supply a harmonic syntax that supports this region.

viii) Sections 6-7 and the postlude

Section 6 is brief, defined by a recall of the Σ motif in the form of a canon between woodwind and voice. Although there are harmonic deviations, the basic harmonic shape of the original is retained, invoking the regions of B and B♭. The most significant deviation from the original occurs where B♭ minor is succeeded by C♯ minor (bars 68-69) instead of moving to G minor (bars 16-17). The regional association, not unrelated to the earlier instance, is made through mixture of the relative major of B♭ minor.

The sudden assertion of C♯ in bar 69 is quickly assimilated into the context of B major's supertonic during the next few bars which herald the recall of β. Here, as noted above, the harmony is more clearly determinate of B major than in the corresponding part in the setting of the octave (i.e. bar 10), given the dominant ninth chord at the beginning of the section. Indeed, the whole of the next 10 bars (bars 69-78) can be presented harmonically from the viewpoint of B major, as the Roman numerals beneath the score in Example 6.3 indicate, although elements of C♯'s tonality (such as the I-IV-V progression through bars 60-71), which is clearly confirmed in the following bars, are evident.

Where B minor, with the full support of the harmonic context, is articulated by δ in bar 73, the motif articulates C♯ (minor), with similar harmonic support in the following bar. B minor momentarily returns in bar 76 within the context of the Σ motif, the A♮, as a (flattened) seventh of the chord, undermines the region around B, preparing a short-term harmonic goal of A major in bar 77, supported by the harmonically determinative character of the Σ motif. The A chord itself includes a seventh, and the subsequent chord is the multi-functional French sixth chord (A♯-D-E-G♯) which has been observed elsewhere as a harmonically transitory entity. On this occasion its root is A♯ (B♭) and it progresses, through chromatic voice-leading, to a B7 chord (which extends through bar 78). The status of the B region is unclear at this point. The chord is the dominant of E, and it is possible to discern an E chord, albeit augmented, at the end of bar 79. However, this E exists within the context of its relative minor C♯ which dominates bar 79 (and 80), rendering the function of the B7 chord, as dominant of the relative major of C♯. This apart, as far as diatonic syntax is concerned, bar 79 does not connect to the B7 chord. The seventh chord, with root G♯ at the beginning of the bar, moves to its tonic, a C♯ minor chord, midway through the bar.

The classifications included on the example during the next three bars testify to the isolated and fragmented nature of the harmonies (in general defined by the barlines themselves) in respect of these two regions. Bar 82 consists of a fragmented β motif, the harmony of which represents that of the half-diminished-seventh of α in its original form from bar 1. The original form of α itself is reiterated in the following bar within a new harmonic context, that of the tonic chord of C♯ major (as opposed to the half-diminished-seventh indicative of the supertonic).

In the postlude as well, the established C♯ major tonality (as suggested by bar 83, the iteration of fragmented β in bar 87, and confirmed by the cadence in the final bars of the *Lied*), is undermined to some degree by short interjections of passages reiterating the note B, if not a B harmony. These instances include the bass line at bar 88-90, the fragmented β motif in bar 89-90, and the B major version of β in bars 93-95. The final three notes in the bass part (bars 96-99) are A♯ B♭), B♮, and C♯ (D♭), which not only form the 'x' feature from the α motif, but represent the tonic notes of the three most common regions in the work. The other prominent region, that of supertonic E♭, is also prominent at this point (bar 96) as D♯ in the clarinet part (doubled by viola). This kind of motivic detail is perhaps typical of Schoenberg's late tonal style.

ix) Summary: region

It will be clear that this detailed harmonic analysis takes the view that although there are two main regions in the work, D♭ major and B major, confirming Schoenberg's comment in *HL*, they have been presented from the overall viewpoint of D♭ major, as this is the key of the final cadence.[20] B♭ minor, relative minor of D♭ major, also sustains a role as a recurring regional centre in the work, although its recurrences (bars 19, 40, 68, and 94-6) are brief, and often in conjunction with the articulations of B major. The other prominent region, E♭ (together with its subdominant, C minor) is in general confined to Section 5, underlining that section's role as one of motivic and harmonic contrast.

One of the more interesting findings of the analysis above is the way in which B major (and other regions) have been supported by relatively conventional harmonic syntax, whereas the passages that articulate D♭ major are more difficult to classify by conventional means. This observation is consistent with the other works studied to this point: that the region in which the work finishes

20. After all, Schoenberg's comment speaks of 'wavering between' the two regions, which does not confirm or deny the possibility that in the context of a theoretical model one of them will be viewed as the 'home' region.

is articulated by non-conventional means, whereas the other regions are frequently defined by their dominants. Moreover, Schoenberg's theory supports this model through its conception of the 'secondary dominants': from the viewpoint of the final region, the secondary dominants define the scale degrees which themselves represent harmonic regions within the purview of the home tonality; from the viewpoint of the regions (or scale degrees), regions are defined by their dominants. In *Voll jener Süße*, the secondary dominants are F♯ (which defines B major), and occasionally F♮ (defining B♭ minor) alongside B♭ (defining E♭). Less common is the G♯ or A♭ which would define D♭.

The following table in Fig. 6.4 shows the ways in which the major regions relate to the main chords of *Voll jener Süße.*

Chords / Region	*Bb min*	*B maj*	*C♯ maj*	*F♯ maj*	*E♭ maj*	*C min*	*A maj*	*G min*
B major	vii	I	II	V	III	♭II (Np)	IV/IV	bVI
C♯ major	vi (rel)	IV/IV	I	IV	II	vii		
B♭ minor	I	♭II	III	VI	IV	II	vii	♯VI

Fig. 6.4: *Voll jener Süße*, table showing how regions relate to the chords

C) *The post-tonal perspective*

The detail of the motivic analysis in respect of the introduction has revealed transformational elements of the pitch-class content that underline a highly coherent and integrated structure that connects with other structural elements from throughout the work. This raises the issue of whether such relations have an analogous coherence when the pitch-class content is examined from the viewpoint of unordered pc-sets.

As in *Nie ward ich*, the segmentation presented in *Voll jener Süße*, has not included the complete work[21] and has rather focused on the first three sections given the initial presentations of the motivic material. A special examination of parts of Section 5 will also be undertaken to determine the harmonic species of the passage in which no tonal-harmonic explanation was

21. This strategy has been adopted with a view towards maintaining focus on making valid analytical points. In general, pc-set analysis of these Petrarch works has not generated any strong sense of innovative pitch-class set usage, or pitch-class set genera disposition, beyond that which has been presented in the previous chapter (in Analyses 1-4). Moreover, the dense textures yield a large number of pc-sets which, given the overall tonal content, are by nature less conducive to supporting the argument that Schoenberg either intuitively or by intention used pc-set relations to structure his motivic coherence, or to unify his harmonic species. The point will be developed during the conclusions.

possible. Example 6.4 shows the segmentation, while 6.5 and 6.6 comprise the matrices of the top three genera, by genera system.

i) Introduction

The somewhat detailed segmentation of the introduction reveals the significance of the octatonic scale as a source for the pc material. Although it does not govern the larger sets in the segmentation (the largest being 6-27 which appears twice in the context of distinct *Gestalten*), the prominent smaller sets, each defined by distinctive segmentations, all belong to this genus, and the relatively high Squo in both the PGS and the K*/Kd system indicates the statistical significance of the observation.

The combined 7-32/34/35 genus from the PGS, which encapsulates the union of the K* complexes of the three diatonic scalar constructs (harmonic and melodic minor scales alongside the major scale, respectively) is also brought into prominence by its high Squo. This genus, which has been observed neither frequently nor prominently in the analyses so far, accounts for 12 of the 13 sets (the exception being 7-3, the set of the combination of the two descending scalar constructs), and underlines the fact that the set of the harmonic minor scale is encapsulated by the *Grundgestalt* bars 1-2. 6-27, mentioned above, is a member of both genera, and thus can be seen as providing a link between this diatonic aggregate and the octatonic.

The other significant genus 'family' that emerges from the comparison of genera systems, are the whole-tone-type genera as indicated by the high Squo achieved by whole-tone scale 6-35 (even though it has only three hits) and the genus around 7-33,[22] both of which appear in the top three places in the K*/Kd genera system. This is supported by the IC2 genus which is prominent in the Parks IV genera system, and also perhaps relates to the T2 transformation which was observed in the motivic analysis. When the sets on which these two genera hit are examined, it is clear that they are less prominent than those belonging to the octatonic genus. They include the majority of the trichordal and tetradal sets (although omitting the prominent 4-3), set 5-26 (the total content of bar 1), 6-32, the set of the progression between bars 3 and 4, and 8-21, the somewhat abstract set of the two half-diminished-sevenths a tone apart. Nevertheless, the genus around 7-33 hits on more sets than the PGS octatonic, and has a significantly higher Squo. Its influence cannot thus be ignored.

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22. Set 7-33 is the only heptadal superset set of the whole-tone scale; or to put it in another way, the whole-tone scale with one of the 'gaps' between tones filled chromatically.

The introduction can thus be regarded as the confluence of three separate models of harmonic species. The first and perhaps most important notes the overall source in the combined major and minor scales, the second is based on the prominence and reiteration of 4-3, and so draws attention to the way that a number of other prominent segments share with 4-3 an octatonic derivation (most notably the 6-27 segments), while the third model, perhaps taking its cue from the T2 transformations noted earlier, illustrates that the whole-tone scale is at the basis of a number of segments within the phrase. An appropriate 'hybrid' genera system, specific to the introduction, is shown in Example 6.8 (Vol. 2).

Section 1

The detailed segmentation in Section 1 has produced a somewhat large group of sets which upon examination of their genera from the viewpoint of the four standard systems, offers a degree of consistency in that the augmented triad is a central component of the highest scoring genus in each system. Thus G4 (Forte's augmented-triad genus), the IC4 genus and the genus based on K* of 6-20 (the hexatonic set),[23] are complemented in the PGS by the eight hits of the 4-19/17 genus (the 4-19 part of which is based on the augmented triad). The latter encapsulates the somewhat atonal total content sets such as 4-19 itself, 5/7-21, 6-31, 6-15 (both of which span the chromatic progressions in bars 14 and 15 respectively), and signature 6-Z44, as well as the linear chromatic segments towards the end of the section (8-22 and 8-2). The fact that the generic disposition changes little when the linear components are excluded (as can be seen by comparing the second and fourth sections of the paradigm in Example 6.5) highlights the association of augmented triad and ic4 with the harmonic construction of the section.

The linear segments, whose pc-sets have been separated out on the examples, have a distinct generic profile, and can be regarded as chromatic in terms of each genera system, which accords with the pc-set character of the β motif with which the section begins.

Section 2

When viewed from the viewpoint of the Fortean genera system, the second section appears to be dominated by a continuation of the augmented genus, although this genus includes just 6 hits (out of 24). Meanwhile, the other systems do not concur with this, preferring the octatonic and

23. See Cohn 1996 for an extended discussion of this so-called 'hexatonic' set.

diminished-type genera.[24] Thus, the domination of the octatonic and diminished-seventh genus in the PGS (which has the same number of hits as G4) is supported by the domination of the IC3 genus, in the Parks IV system and the high Squo accorded the genus around 8-28 given by the K*/Kd genera system. One can also point to the emergence of the 6-Z19/Z44 genus, in the PGS, (hitting on half of the sets in the matrix), a significance which is corroborated to some degree by the appearance of IC4 and IC6 in the top three places in the Parks IV system. Finally, the unclear profile of the segmentation suggests that the K* intersection system be consulted to see if any particular genus stands out from the viewpoint of number of hits. Example 6.11 shows that, indeed, 9-3 hits on 23 of the 24 sets, with the not unreasonable Squo (given the other Squos in the diagrams) of 0.614.

The difficulty of interpreting the generic profile of this segmentation is perhaps best addressed by breaking the segmentation into component parts, in this case separating bars 17-20 from bars 21-24. Immediately one can therefore characterise the first four bars as dominated by the overtly octatonic segments in bars 17-19 (the strength of which dominates the sets representing the segments of the succeeding bars), and this is overwhelmingly confirmed by the Squo scores of octatonic-type genera in three of the four genera systems. The model presented by the Fortean system (which as has been noted elsewhere does not have a clear 'octatonic' genus), can be ignored on account of the low Squos of its genera.[25]

There is no such contradiction between genera systems in dealing with bars 21-24. Here the predominance of the chromatic genera confirms the intuitions one might have given the chromatic vocal line, bass line and the return of the β motif.

Section 3

The dense contrapuntal textures of the third section have been examined in terms of the main linear phrases, and of the harmonic segments which the 'vertical slices' of the texture unfold. It is perhaps unsurprising to find a degree of conflict between the genera systems, although the conflict may be more a matter of 'prioritisation' than of actual genera content. Examining the

24. Recall also that of the Fortean genera, G4, with its substantially different (lower) cardinality, tends to have its significance exaggerated somewhat by the Squo scoring system. This has been discussed above in Chapter 4, in respect of Kennett's observations (see Kennett 1998b), and the problem of reconciling genera size and genera system will form part of the conclusions.

25. It is perhaps interesting to note how the Forte system, in the absence of a sufficient octatonic component, frames the octatonic sets into the part-chromatic sets of bars 19 and 20, re-interpreting 6-Z23 as a kind of chromatic set. See the reduced matrix in Example 6.11 in Vol. 2.

section as a whole, the Forte system prioritises the 'chroma-dia' genus (a combination of the Kh complexes of 3-2 and 3-7) over close-following diatonic genera G11 and G12, and when the linear and harmonic sets are separated, this translates into the chromatic construct (encapsulated by G5) underpinning the linear segments (an interpretation partially supported by the prominence of 8-1 in the K*/Kd genera system) while the harmonic sets are characterised as diatonic (through G11 and G12).

The PGS places its diatonic genus 7-35+ in first place, which is followed by the genus based on the whole-tone segment, 4-21+. A degree of support for this is offered by the Parks IV system, which places IC2 in first place (with IC1 following by some distance), although IC5, the characteristically diatonic genus in this system, is in fourth place (and does not figure in the chart). This perhaps reflects the ambivalence in the PGS model of the segmentation between diatonic and whole-tone. The breakdown into texture type (linear and harmonic) is rather neatly encapsulated by the PGS, in that the linear patterns are primarily diatonic (i.e. derived from the 7-35+ genus) whereas the total content segments are captured as part of the 4-21+ genus. Both interpretations are supported by the Parks IV system.

The issue as to whether the Fortean or PGS depiction of the events is preferable is best illustrated by an examination of the linear segments. The two systems are effectively in conflict over whether the chromatic segments, led by the β motif (4-1), predominate over the more diatonic segments led by, for instance, the α transformations which form 4-11, and ultimately it is difficult to determine through theory which predominates over the other. After all, both genera systems make concession to the alternative model – the conflict is over which comes first.

The analysis reveals, nevertheless, an intuitive rightness about the PGS model, in that the linear passages do seem somewhat diatonic (epitomised by the transformed α reiterations, the diatonic character of the δ iterations, and the 7-35 segment in the upper strings between bars 27 and 29), it is supported by the Parks IV system, and it is the genus that has been preferred in the other sections in this work.

ii) Pc-set genera: a summary

Fig. 6.5 shows a summary of the main genera of the work, in which it is clear that there is no consistency, although it is interesting to find that the recurrence of the octatonic genus from the introduction. Indeed, the three pc-set genera 'types' which were identified in the introduction are projected into the sections discussed here.

Section	Key genera	Alternative	Supporting Genera
Introduction	Octatonic	7-33 (from K*/Kd genera)	7-35/34/32 (extended diatonic)
Section 1	G4 (augmented)	4-19/17 (atonal)	
Section 2	Octatonic		4-28+ (diminished)
Section 3	7-35+ (diatonic)		4-21+ (whole-tone tetrad)

Fig. 6.5: *Voll jener Süße*, summary of pc-set genera by section

Thus, the interaction between diatonic (three scales) and octatonic genera identified in the introduction, is more clearly framed around the octatonic in bars 17-21 at the beginning of the second section. The octatonic can also be found in the anacrusis to the climactic return of the *Grundgestalt* in the central orchestral interlude. The atonal (6-Z19/44) and augmented (G4) genera which could be identified in the introduction also underpin the content of Sections 1 and 2, but its significance is not high. On the other hand, the introduction's diatonic scalar basis can also be found predominating in Section 3, where the canonic instances of β and δ are presented in a context which must ultimately be regarded as that of a diatonic scalar basis. The diatonic harmonic species are also to be found in Sections 1 and 2, but their role is peripheral to the more exotic genera of the systems.

D) Conclusions

These analyses have shown this *Lied* to demonstrate a high degree of thematic coherence, although this is achieved by principles of repetition and variation as opposed to developing variation. The α motif permeates most of the texture in the song, yet retains its identity throughout, while the other motifs β, δ and Σ are less sophisticated in terms of their variation, and so might be regarded more as *Leitmotifs*, in which they are afforded a strong identity due to the lack of variation.

The principle of coherence can be extended to the recurrence of T2 which dominates the surface of the introduction, interlude and conclusion, yet underpins some of the more over-riding motivic and harmonic processes. The issue of whether this is ultimately a motivic or harmonic process will form part of the conclusion.

In general, the harmonic analyses support Schoenberg's contention regarding the suspended tonality of this *Lied*, in that it does indeed 'waver between' C♯ and B, although the theory of regions does explain how this has been achieved. The post-tonal perspective, on the other hand, underlines the confrontation between diatonic harmonic constructs and the new types of harmonic species (such as octatonic, and augmented-type genera) which the harmonic language of *Voll jener Süße* presents.

i) An Interpretation

The subject of Petrarch's poem appears to be the poet's momentary, fantastic vision of his beloved, which he has experienced on one particular occasion in his past. He devotes the rest of his life to recreating that moment and finally discovers a degree of contentment in solitude (in the physical form of the 'lonely valley'), in which he is able to contemplate the past vision against the backdrop of nature. In Schoenberg's setting, the unique character of the opening based on the *Tristan* chord is recalled in the interlude, but its harmonic context is never recreated during the course of the song, and in the postlude it is replaced by the diatonic version of α that had been established in Section 5.

This suggests a possible metaphor: that the vision is represented by the α motif in combination with the sustained *Tristan* chord as it appears at the opening. It is important to note that this is a *Tristan* chord that is devoid of the harmonic context in which it appears in the opera, where the resolution (or indeed, the non-resolution) of its dissonances becomes a stunning metaphor for the drama that unfolds. Schoenberg's presentation of the chord suggests that the chord itself is the focal point (rather than its potential resolution) given the context of an intensely symmetrical, modernist setting, as suggested by the motivic analysis.

One might expand the implicit metaphor to suggest a deeper significance of the meaning of the *Tristan* chord for Schoenberg. After all, in the *Tristan* chord Schoenberg had perceived its inherent modernist implications and (perhaps uniquely amongst the commentators of the time), seized what he had seen as the opportunities it generated, as illustrated by his later theoretical writings and their treatment of the chord as a special vagrant. For Schoenberg the *Tristan* chord represented the inspirational moment of discovery, which encapsulated both the theoretical implications and the creative possibilities that were bound within it, a moment that would in fact dictate the course of his compositional and creative life. Less, perhaps, a chord representing the impossibility of love's fulfilment (as its original context may suggest), and more of the personal meaning it held (alongside its theoretical and compositional baggage) for him and his art (the fullness of which perhaps he did not fully realise in 1904).

This is the literal 'moment' which Schoenberg has isolated (in the technical sense suggested by the foregoing analysis), in order to represent the momentary, 'inexpressible sweetness' of Petrarch's vision – a vision that encapsulates the object of, and justification for, his life-long devotion.

Analysis 7: Op. 8 No. 6, *Wenn Vöglein klagen*

The third and final Petrarch song is a setting of Sonnet 279 from the 'Rime Sparse'.[1] This sonnet is a lament in two parts, which correspond with the octave and the sestet. The first sets the scene in which the poet 'writes' to his lost love making use of a group of metaphors derived from nature (winds sighing in the trees, riverbanks wreathed in flowers), while the second comprises the voice of his beloved from beyond the grave, consoling him with the idea that she has become eternal through death – 'I died to enjoy eternal existence'. The predominance of the major key in the postlude contrasts the minor of the introduction, conveying a sense of consolation which follows grief. This distinction between the semantic context of the two parts extends to the nature of the texture whereby the motivic complexity of the first part is simplified to some degree in the context of the thematic recapitulations in the second.

There are subtle differences between Förster's German translation and Petrarch's original which, in fact, have little impact upon the analysis and its interpretation of Schoenberg's setting.[2]

A) Form and motif

The separation into two parts – invocation followed by voice from beyond the grave, as described above – is followed in Schoenberg's setting by the fact that the second part is effectively a truncated and to some degree varied recall of the first, although the variation does not include the chromatic and textural intensification that the other orchestral *Lieder* have exhibited.

In general, the musical phrase structure breaks both the octave and the sestet into four sections. In the octave, the phrases articulate precisely the four couplets of the text, while in the sestet, the four sections are distributed over the syntactic content of the three couplets of text (see Fig 7.1 on p. 259 below). In a further distinction between the parts, in the musical setting of the octave, the end of lines in the text are paralleled musically by the use of appoggiaturas, while there is no such

1. As in the other Petrarch settings, this numbering is based on Durling's translations (Durling 1975).
2. Förster's German translation omits the idea expressed by the original Italian '*veggio et odo et intendo*' (line 7) that the poet sees, hears and understands her during his 'daydreams', and it is as a result of this that the poet can see her before him; "ch'ancor viva di si lontano a'sospir miei responde". In Förster's version the poet simply sees her as though she is still alive '*She' ich dann noch am Leben*'. Further subtle deviations in the translation process occur in the last three lines. Förster translates '*mie di fersi, morendo, eterni*' (my days have become eternal by dying) as '*um zu geniessen ein ewig Dasein*' (I died in order to enjoy eternal existence) which could indicate intention.

correspondence in the sestet. *Wenn Vöglein klagen* differs from the other Petrarch settings in that it contains no orchestral interlude to delineate its two parts. As the harmonic analysis will confirm, the first part leads into the second in a manner analogous to a development section moving to a recapitulation in a traditional sonata, in that the bars comprise a climactic anacrusis to the recapitulation that recalls the first section. The motivic analysis will provide evidence for the view that, like *Voll jener Süße*, *Wenn Vöglein klagen* is primarily thematic, its sections articulated by thematic identity. Therefore, from the viewpoint of the motivic and thematic correspondence, the motivic content of Sections 1, 3 and 4 are recalled in Sections 5, 6 and 7 respectively, while the final section recalls Section 1 once again.

i) Motif

The following text refers to Example 7.1 in Vol. 2, which shows the motif-forms highlighting the features which connect them, and to Example 7.2 in Vol. 2, which traces the instances of the motifs through the score, which has also been annotated with the regional classifications of the main harmonies.

Example 7.1 shows how the distinct motif-forms can be derived from the opening instances of α. β therefore emerges as encapsulating the inversion of the 'x' feature of Motif α,[3] while retaining rhythmic feature 'b'. Motif δ is formed from the motivic feature 'y' which appears within the α forms in bars 2-4, while Motif θ is based on a variant of 'v', a relation which is confirmed in bar 14, where the intervallic reference to the motivic feature 'v' of bars 1-2 is unequivocal. This confirms that the α motif, with its initial four iterations in the introduction, forms the *Grundgestalt* of *Wenn Vöglein klagen.*

Motif α

The five-note α motif is the work's most characteristic motif on account of its frequency and the clarity of its articulation. While there is considerable variation of α throughout the work, particularly in terms of its conclusion, its identity is retained by the grace note, the metrical articulation of its characteristic rhythmic fragment, and the overall shape of its interval sequence.

3. To be sure, the intervals are transformed, and it is more correct to state that it is the shape which is inverted. It could be argued, however, that this allows the β motif to retain the motivic feature 'z' (falling semitone from strong to weak).

The nature of its variation is typified by its appearances in the introduction, where four instances of α are distinguished by their pitch level and the intervallic structure; notes 1 and 2, plus the falling semitone between notes 3 and 4, retain the motif's identity, while the subsequent notes differ. The interval structure between the second and third instances is identical, while the fourth perhaps combines elements of the first two.[4] The motif is not associated with a particular harmonic pattern: on some occasions it remains harmonically neutral (as, for example, in bars 5-6, 6-7, 11), while on other occasions it contributes to the sense of close brought about by the V-I chord progression (as at bars 10 and 11-12), or even V-VI as at bar 15 (oboe/*cor anglais*). It appears in its most saturated form in the orchestral parts in bars 11-12, where successive repetitions (violins) recalling the opening appear in canon with the lower strings, which themselves reiterate the motif.

While it dominates the introduction and first part, Motif α is less apparent in Part 2, appearing only at the beginning (the recapitulation of bars 5-7) and at the end, as the last phrase in the vocal part before several iterations in the postlude. Its internal structure, with the falling grace note and descending semitone, suggests perhaps a metaphor with the notion of sighing, which can be linked with '*klagen*' (to wail or cry), the word with which the motif is originally associated in the first line of the vocal part (bars 5-6). The notion of lament is a major theme within the content of the sonnet. The recurrence of Motif α in the octave reflects this theme while its relative absence from the sestet underlines the reassurances of 'the voice from the grave'. In this way, *Wenn Vöglein klagen* illustrates the *leitmotivic* use of the α motif.

The other motifs.

There are two major variants to the five-note β motif: truncation by means of the omission of the fifth note, and truncation by omission of notes 4 and 5 (the lattermost is illustrated in Example 7.1). Indeed, the latter truncation effectively reduces β to little more than a 'lower mordant', yet its rhythmic character ensures that the reference is unequivocal, especially as can be seen in bar 9 and in similar instances. Unlike α, the β motif is absent from the vocal line, and its varied context appears to preclude a *leitmotivic* association, although its concentration in Part 1 (and virtual absence from bar 27 through the postlude) appears to suggest alignment with the poet's lament, rather than the beloved's voice from beyond the grave.

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4. The falling minor sixth between notes 4 and 5 is derived from instances two and three, while the rising semitone in notes 5-6 recalls instance 1.

The thematic motifs δ and θ, both of which have been shown to derive from the *Grundgestalt* through Example 7.1, tend to assist the articulation of form through their repetition in Part 2. The motifs are based on (respectively) the augmented triad and chromatic scale, and suggest an avenue of enquiry for the pc-set genera analysis, in order to assess the degree to which they might be regarded a manifestation of a larger-scale harmonic process.

Motif Σ functions as the main theme of the final section in both the octave and sestet. In the first, it is distinctive because it underpins the conflict between simple and compound time (3/4 as opposed to 6/8) begun in the previous bar, and amid a harmonic context which is chromatic (and unclassifiable in triadic, regional terms) it forms the climactic anacrusis to the recall of the opening. In the second part, its compound rhythmic context is stable, though the sense of climax which is achieved through harmonic means – the motif with its harmonic context is reiterated (in transposed form) as part of the *dénouement*. The final instance in the postlude is supported by a B minor-based harmony, underlining the sense in which the motif evolves from a state of harmonic instability to one of stability, perhaps mirroring the text's depiction of the path from the poet's expression of grief to the state of acceptance.

ii) Summary: motivic analysis

This brief explanation of the motifs and the motivic character of the *Lied* which they convey, underlines the categorical nature of motivic identity in respect of each of the motif-forms in *Wenn Vöglein klagen*. That is, there is little sense of the developing variation that clouds the boundaries of motivic identity that has been observed elsewhere. Moreover, as Example 7.1 suggests, these motif-forms articulate phrase structure and, as the motivic summary offered in Fig. 7.1 shows, formal structure.

Description	*Section*	*Formal Schema*	*Motifs*	*Lines*
Introdution		A'	α	
Part 1	1 (bars 5-8)	A	α δ β	1-2
	2 (bars 9-11)	A'	δ α β	3-4
Octave	3 (bars 13-16)	B	θ β	5-6
	4 (bars 17-20)	C	Σ	7-8
Part 2	5 (bars20-23)	A	α δ β	1-2
	6 (bars 24-26)	B	θ β	2-3
Sestet	7 (bars 27-34)	C	Σ	4-6
	8 (bars 35-37)	A	α	6
Postlude		A'	Σ α	

Fig. 7.1: *Wenn Vöglein klagen*, the articulation of the formal schema through motif

Thus, the unambiguous identity of the motif-forms, which extends through the entire piece, ultimately suggests that, like *Voll jener Süße*, the motivic development in this song is characterised by variation, (or thematic variation) rather than the developing variation which could be found in *Nie ward ich* and some of the earlier songs. The motivic features outlined in Example 7.1 underline that developing variation, nevertheless, plays a role in the way all motif-forms connect with the *Grundgestalt.*

B) *The harmonic perspective*

In general, *Wenn Vöglein klagen* is dominated by the regions of tonic (B minor), the submediant major (G major), the sharp mediant (E♭ major), and v minor regions (F♯ minor), as illustrated in Example 7.2 and summarised in Fig. 7.2 below. The tonal definitions that these suggest are sustained less by a polarity of tonic and dominant relations (or descending fifth progressions) than by progressions which can be described and classified from the viewpoint of each region.

i) The introduction

Although the introduction does not easily lend itself to classification within a single key, its regional structure encapsulates a preview of that of the entire *Lied.* The predominating regions used in *Wenn Vöglein klagen* are B minor, E♭ major and G major, suggesting that the articulations of B♭, D and F♯ triads in bars 3-5 be regarded as secondary dominants, i.e. the dominant-functioning chord in each of the three regions, ♯M, SM and t respectively. The roots of the three are encapsulated within the articulation of augmented triad in the second instance of α. In this context, the initial dominant-seventh chord with root B (which follows the initial statement of α in B minor) may be regarded as an augmented-sixth which resolves to the 'mediant's dominant' in bar 3, confirming the important role of the B♭ chord.

ii) Section 1

Similarly, the progression in bars 5-6, is not easily characterised as a triadic progression in a single region. This particular progression is of significance in that it recurs immediately (bar 7), and the whole sequence is recalled at the point of recapitulation. In the context of B minor, the first chord is difficult to classify, ♭VII being a somewhat insufficient label for this *Tristan* chord, yet it is clear that ♭VII is a recurring element in Schoenberg's pre-atonal tonality, whether as a region (such as the ♭MD discussed and observed in *Voll jener Süße*), or as the functional classification of a chord. In such cases, the classification 'subdominant's subdominant minor' is often appropriate, although this is not the case in respect of the half-diminished-seventh in bar 6. In the region of G minor, however, it holds the supertonic function which Schoenberg identifies with this chord-type, and the following French sixth-type chord (intrinsically bearing a functional *double entendre*) could be regarded as an altered tonic seventh. The third chord could be regarded as G's mediant, but the implicit 'ascending' or weak progression (I-III) contradicts the cadential phrase structure which suggests a half closure, brought about by the triadic structure of the final B minor chord, in the context of a first inversion.

From a functional viewpoint, it can be argued that the relationship between chord 1 and 2 is the same as that between chord 2 and 3 (i.e. supertonic-tonic), with the entire progression representing an interaction of the two regions (tonic and submediant minor). The prominent voice-leading, such as the G moving to F♯, the B approached not by an A♯ but by A♮ (the supertonic of G) and the D (which is common to both regions) approached by a chromatic ascending line, may be deemed factors supporting this mixture of regions.

A different and more straightforward issue in respect of chordal classification can be observed in bars 7-8. The passage is dominated by an augmented triad, in which its bass is initially C♯, suggesting a supertonic function within the B minor region. This is confirmed by the 6-4-2 inversion of II in the last part of bar 7, and while the pcs of the chord do not change in the first part of bar 8, the descending bass line which follows suggests a change of the root to A. The classification of this root is yet again ♭VII, and undermines the integrity of the region around B minor. In the context of what follows, the harmonies shift towards the region of G minor, as confirmed by the ninth chord on D at the end of the bar (which itself is anticipated by an augmented triad immediately preceding it), the presence of the G/D simultaneity at the end of the first beat, and the descending line A-D that extends throughout the bar. The augmented triad articulated in bars 7-8 also holds a supertonic function in G minor.

The first section can therefore be regarded as an interaction of the regions of the tonic and its submediant. The assertions of the tonic are undermined through the assertions of the vagrant harmonies: the *Tristan* chord and the augmented triad, and their foundation on the scale degree of ♭VII.

iii) Section 2

This section is less difficult to characterise from the viewpoint of chordal identification, although the issue of predominating region remains unclear. The juxtaposition of G major and B minor remains a foregrounded contrast, highlighted by the iteration of the augmented triad D-F♯-A♯, which could be construed as the dominant within either region. Nevertheless, the inclusion of C♮ in the bass line and the preceding D9 chord (bar 9) suggest that the balance of power lies with G major. A strong sense of B minor's dominant prevails in bar 11 beat 4, which leads to a reasserting of B minor in the following bar. In the intervening passage, a curious chord, which can be described as a D minor with 7th (beat 2 of bar 11), cannot be classified in terms of the primary chords of either region. While a characterisation of this chord as an altered dominant-seventh chord of G major seems possible (if not explanatory), the altered note F♮, which moves to E, infers B's minor subdominant, E minor, which is articulated on the following beat. The expansion of chromatic resources by the tendency of the tonic to move to its own minor subdominant, illustrates Schoenberg's *HL* description of the minor subdominant, as discussed earlier.

From a more general viewpoint, this F♮ anticipates the regional shift towards E♭ (the mediant) two bars later at the beginning of the new section. Other details confirm this, such as the A/G♯ alternation in anticipation of the articulation of E♭ two bars later, and the *double entendre* which can be attributed to the German sixth that leads to the dominant-functioning D chord, in the latter part of bar 12, in that it can also be regarded as the dominant of E♭ in the new section (see the '*' in Example 7.2).

Therefore, it could be concluded that the interaction of the tonic and submediant minor regions within the first section is retained in the second section, although the nature of interaction is different. Suspended tonality gives way here to an alternation of emphasis between the two.

iv) Section 3

In terms of chord identity, the chromatic lines generated by the θ motif present a more clearly defined region, with its initial articulations of tonic and dominant in the region of the sharpened mediant, E♭. The diminished-seventh sonorities (bar 13, beats 2 and 4), which would be classified by Schoenberg as tonic on the basis that they include the tonic root,[5] serve to disintegrate the assertion of the local tonic. Embedded within the beat is a B7 minor chord which refers to the previous tonic region. The reference is made more explicit in the second beat of the following

5. See Schoenberg 1978: 196, for a description of the functional classification of the diminished-seventh. Note that for Schoenberg the lack of the perfect 5th within the structure of the diminished-seventh and other vagrants, made them less definitive of region, and less capable of being classified in terms of function.

bar (bar 14), before further destabilisation of the ♯mediant region, through the re-emphasis of the region of the submediant in bars 15-16. However, in this case it is the minor form of the submediant which is less closely related to B minor and more closely related to the E♭ region, which dominates the first part of the section.

v) Section 4

G minor is articulated by repetition of its tonic and the dominant-based form of the α motif (emphasising root and fifth of the dominant chord of G minor). The region is somewhat juxtaposed with B minor which dominates bar 17, although it might be argued that the G major articulation at the end of bar 16 acts as a fleeting intermediary. The two climactic bars (bars 19-20) are dominated by chromatic material, and no clear regional definition is able to dominate until bar 20, where the C♯ seventh chord is clearly articulated. G♯ minor, C♯ and F♯ major are the most frequently used triads of this passage, indicating a B minor region, although the context (with the emphasis on C♯ chords) strongly points towards the region of the minor dominant (F♯ minor). The B minor region, however, is confirmed at the beginning of the new section through the recapitulation of the progression to its tonic triad.

vi) Part 2 (Sections 5-8)

The second part, which recalls material from the first, omits the passage based on the submediant region (as mentioned above). In fact, there is no sustained focus on the submediant region (G) in the second part, although fleeting references by means of a II-V progression in bar 29 (c.f. Example 7.2 in Vol. 2) and the D-based seventh chord which predominates in bars 32-33,[6] can be found.

The recall of the δ motif in Part 2 (beginning in bar 27) warrants discussion. The δ motif in Part 1 forms the anacrusis to the recapitulation of the introduction, and it is characterised by ascending chromatic scales which, to some degree, obscure the harmony, which is focused upon the region of the tonic and the 'minor v'. The recall in bar 27 itself is preceded by an anacrusis (bar 26), the harmony of which can be classified within the tonic region (B minor), and, although the passage retains the regional context of the earlier instance, the absence of the chromatic material brings clarity to the harmony. The passage therefore involves a temporary modulation to the region of the 'minor v' (F♯ minor), although it could also be approached from the viewpoint of the tonic. The D chord mentioned above, which occurs in the middle of bar 29 as chord VI, represents an

6. This chord is part of a three-chord group which does not suggest the SM region.

interruption within the F♯ minor region, while the ensuing F chord (bar 30) introduces the instance of δ in the Neapolitan region which encompasses bars 32-33.

The diminished-seventh which begins on the second beat of bar 32, and is sustained through to the end of bar 33, acts as a pivot between the Neapolitan region, C minor (in which it holds the function of mediant), and B minor, in which it is supertonic (represented in the score by the accidentals whereby D♭ becomes C♯). The final phrase recalls the α motif from the opening in Section 1, and, although there is no asserted tonic until bar 38, the reiterated dominants, preceded by German sixths and circumscribed by articulations of α, enhance the emphatic harmonic cadence to B minor in bar 38. The dominance of the tonic region is reinforced by the articulations of the δ motif which has been repositioned harmonically.

vii) Summary.

The following Table in Fig. 7.2 summarises the main regions used.

Section	Bars	Region	Classification (in B minor)	Defining chords	Main motifs
Introduction	1-5	B minor, E♭ major, G major B minor	t ♯M SM t	I Aug 6 - V V V	α α α α
Section 1	5-8	B minor/ G minor	sm	I / II-V	α β δ
Section 2	9-12	G minor B minor	sm t	I, V, VI V-I	δ,α α
Section 3	13-16	E♭ major G minor	♯M sm	I, V I, V, VI, IV	θ α
Section 4	17-20	B minor B minor/F♯ minor	t t / minor v	I, V II / V	Σ β α
Section 5	20-23	B minor	t	I, II	α β
Section 6	23-26	E♭ major B minor	♯M t	I, II, V IV, V, I	θ α β
Section 7	27-33	B minor / F♯ minor G minor / C minor	t / minor v sm / Np	VI I V/II V I VI I V/II V I	Σ Σ
Section 8	34-37	B minor	t	II v Ger 6	α
Postlude	38-47	B minor G minor / ? B major	t sm T	I I, V I	α

Fig. 7.2: *Wenn Vöglein klagen*, regional summary

Note that the regional classification is oriented around B minor and so uses the 'chart of the regions in minor'. In general, there are three main regions: B minor, G minor (SD), and E♭ major (#M), although the minor v (F♯ minor), and Neapolitan (C minor) also appear. The region of G minor is less consistently articulated in Part 2, (the sestet) which recapitulates the content of

Part 1 – rather, it is referred to by means of the seventh chords with D root in bars 29 and 32. The G/B polarity returns to the fore in the postlude, where in bars 37-8 a G chord moves directly to a B minor chord, in the manner of a German sixth. It recurs in bar 40 and, most clearly, (V-I cadence), in bar 43. The G finally yields to, or is reconciled with, B in bar 45 when, in the bass line, it moves chromatically to F♯, the fifth of the final tonic of the work.

These three main regions can be connected by assessing their relation to the tonic (as indeed the fourth column suggests), and by noting that they partition the octave equally,[7] that is, the three pitch-classes of the regions form an augmented triad. Once again, this can be regarded as a further example of the recurrence of the augmented triad, a latent process that begins in the surface of the opening where the augmented triad first emerged. The melodic augmented triad in bar 2 is an anticipation of the roots of the harmonic succession of bars 3-5, although the order is somewhat changed. In turn, these chords have been interpreted as forming the dominants in each of the three main regions in the work, and appear as an augmented triad which has a physical manifestation a few bars later in bar 8.

At the core of these observations is the idea of transformation and, more specifically, transposition upwards or downwards by the pitch-class interval of a major third, which in Lewin's terminology is T4 or T8. Of course, if x is a pitch-class, T4(T4(T4(x))) renders x, with each T4 transformation offering a new member of the augmented triad based upon x. T4 is therefore the means by which the regions can be viewed as being connected with each other whereby the functional classifications (I, III, V etc.) are the elements which are transformed.

Finally, the harmonic analysis has demonstrated an important distinction within the harmonic classification process. While some sections exhibit a succession of chords which cohere within the context of a single region (given Schoenberg's particular view of harmonic theory) such as in Section 2, there are some phrases, such as at the opening of Section 1, in which the regional specification only extends to two successive chords. In the introduction, the three successive chords in bars 3-5 represent the dominants of the three predominating regions: that is, the regional articulation becomes so fragmented that it is only in the context of the whole – the relationships between the regions which make up the work – that the individual chord progressions can be said to cohere.

7. See Cinnamon 1986 for instances of this phenomenon in the late nineteenth century music.

C) *The post-tonal perspective*

The pc-set analysis is focused upon the first part (the setting of the *octave*), largely because of its harmonic indeterminacy, and the fact that the second part is primarily a recapitulation of the first, in which the underlying harmonies are less complex and their relationships are perhaps less clearly depicted by pc-set analysis, than in their model. Example 7.3 (Vol. 2) shows the segmentation. Particular focus has been applied to the opening and first section, as they were found to be particularly indeterminate in terms of regional context in the harmonic analysis above. In these segmentations, attention has been given to the way in which the linear material (the melodic elements) interact with the harmonies, which are generally triadic. Moreover, in general, the clarity of the texture in these sections is more conducive to pc-set analysis. The harmonic blocks of Sections 2-4 (a rigorous sequence of total content sets) have also been examined in order to ascertain whether the harmonies belong to a diatonic genus or whether they point the way towards other genera. Finally, the various motifs have been examined, including the various permutations of α, in order to determine the nature of the relations between motif-forms. Examples 7.4 and 7.5 show the genera system-by-section paradigms.

i) The introduction

A precursory examination of the initial segmentation offers few points that conventional analysis would have missed. The central axis in bars 2-4 is dominated by atonal type sets such as 6-16, 6-14, 6-Z19, which are connected by the one set common to all three, 5-Z17 (itself articulated by the two central α motifs), while the outer sets 5-24 and 6-Z25 are more overtly diatonic. One feature that is uncovered by the pc-set analysis is that, despite the fact that the four iterations of the α motif reveal three distinct pc-sets, the sets unfolded by successive iterations are of the same pc-set family. That is, the concatenation of α motifs 1 and 2 is 7-32, which is embedded within the set of α motif 2 and 3 (8-17). Moreover, the set of α motif 3 and 4 is also 8-17, suggesting a degree of pc-set homogeneity which is not obvious from the examination of the motivic structure or their transposition levels.

The chart of the top three genera, however, suggests a rather inconsistent view across genera systems. The Fortean system highlights G4, which encapsulates the 'central axis' of atonal-type sets mentioned above (see Example 7.5),[8] through its high Squo, yet it represents only 5 of the 17

8. Note that if the original Fortean procedure is used to calculate the Squos, then G5 has a higher Squo and presides over G4. The issue has been discussed above.

sets in the segmentation.[9] The fact that these five are centrally located in close proximity to each other suggests that there may be some significance in this, and the augmented genera of both the Parks IV genera system and the PGS (IC4 and 4-19/17 respectively) are at least in the top three of their respective systems. The chroma genus is in second place (supported by the prominence of the IC1 genus in the Parks IV genera system) - encapsulating the sets of the last two bars, not including 5-24. Finally, the dia genus (G11) is in third position, encapsulating the pc-sets which begin and finish the introduction. Such a view suggests that the passage is somewhat radical in terms of its harmonic species, with the chroma and augmented genera out-performing the genera which represent diatonic harmonic species.

In a sense, the PGS offers the opposite view, promoting a genus which has a large number of hits – the 7-35/32/34 genus (a genus which was noted and discussed in respect of *Voll jener Süße*). Not only does this suggest a more integrated interpretation of the passage (in that a single genus covers the vast majority of the sets in the segmentation), but also its prominence suggests that the source of the harmonic species of the passage can be found in the constructs which are already familiar – that is, the sub-segments of the major, harmonic and melodic minor scales. In its reduced state, the PGS also recognises the significance of the augmented genus (through sets 6-14 and 6-16), and distinguishes the chromatic material (5-3 and 8-2 from bars 4-5). Nevertheless, the interpretation confronts the view promulgated by the Fortean genera system, and although the latter has the higher group of Squos, the high number of hits of the former strikes an intuitive appropriateness, and is the preferred interpretation here.

ii) Section 1: conflicting models

The vocal line's reiterations of the α motif are followed by the phrase that articulates θ, which, apart from being based on the augmented triad, constitutes pc-set 6-Z44, the Schoenberg signature set (though its pc level is not that of an authentic signature instance).[10] This set is the complement of 6-Z19, the set which formed a central segment in the introduction. The relationship is emphasised firstly by the recall of tetrad 4-19 as the first four notes, and secondly by the articulation of 5-Z37 as the last 5 notes of the segment, the interval content of which is identical

9. Once again, this intuitive anomaly (high Squo, low representation) is largely due to the uneven cardinalities of the Fortean genera, in that G4 has only 33 members, whereas the larger genera have up to 113 members, representing a ratio of over 3:1. See Kennett 1998b.

10. The so called 'Schoenberg signature' (see Forte 1978a) consists of the notes E♭ (S), C, B (H), B♭ (B), E, G. Its pc-set is 6-Z44.

to that of 5-Z17,[11] the set of two of the α motifs in the introduction. These two factors provide further evidence of the derivation of θ from the *Grundgestalt*.

The detailed segmentation of Section 1 reveals similar conflicts in terms of its pc-set genera to those of the introduction. On this occasion, however, the emphasis placed on G4 by the Fortean system is supported by the strength of the IC4 genus in the Parks IV system. The reduced matrix shows that the remaining sets are somewhat widely spread amongst seven other genera. Meanwhile, the two whole-tone genera, 6-35 and 7-33, are given due weight by the K*/Kd genera system, a factor supported by the (albeit rather distant) second place achieved by the IC2 genus in the Parks IV system. Finally, the PGS suggests, as in the introduction, that the harmonic species of the section is most appropriately derived from the diatonic scalar constructs, and although the Squos of its top genus is not as high as that of the Fortean system, the remaining two outscore their counterparts in the Fortean system.

The obvious difficulty in interpreting this section has been approached in two ways. Firstly, a hybrid system has been constructed, which assembles the key genera from across the four systems.[12] This presents the segmentation as being based on the whole-tone scale, which dominates the orchestral parts in bars 7-8, rather than the augmented genus, which it nevertheless incorporates through the sets of the vocal line (6-Z44 and 5-Z37) in the same passage and 7-26 of the first part of bar 7.

The second way in which the difficulty has been addressed is by breaking the section into two parts (as can be seen in Examples 7.4 and 7.5). In the first, comprising the α articulations, the predominant genus-type across each system is the ubiquitous octatonic genus, supported by the third place accorded 8-28 in the K*/Kd genera system. In both the Fortean system and the PGS, their respective diatonic genera are in second place. The usefulness of this approach is made apparent in the larger second section, where the strength of the 7-35+ genus in the PGS is seriously challenged by the 4-21+ genus, offering support to the whole-tone sets promulgated by

11. That is, 5-Z37 is Z-related to 5-Z17.

12. Note that 6-35, the set of the whole-tone scale, was omitted because its hits were contained within 7-33. Similarly, once reduction had taken place, the 'non-7-35' parts of the 7-35/34/32 genus were already covered by other genera, and so 7-35+ was used. 8-22 has been included (although not discussed in the previous paragraph) as it was fifth on the K*/Kd complex list with a useful if not commanding Squo, and yet held a substantial 17 hits from the segmentation.

the K*/Kd genera system. The strength of the augmented genus is also undeniable, and its obvious relation to the notion of whole-tone is clearly an important attribute of the phrase.

iii) Sections 2-4

There is less disagreement across the genera systems in respect of Section 2 in that the sixteen hits which underpin the predominant extended diatonic genus are challenged by the fourteen hits of the Fortean 'dia-tonal' genus (G12). The two form the top two places in the PGS, while the 4-19/17 genus is some way behind in third place. Its augmented content is underlined by the fact that the 'augmented' G4 genus is in second place in the Fortean system, and indeed G4 is followed closely by the 'diminished' G3 genus. The K*/Kd genera system, however, offers the most conclusive picture of the passage, with the genus represented by the K* complex of the harmonic minor scale, 7-32, predominating by some way (echoing the overall diatonic interpretation suggested by the other genera systems), to be followed by genera based on 5-Z17 and, importantly, 6-Z19. The relationship between 7-32 and 6-Z19 will be examined more closely in the conclusion chapter, but its emergence here suggests a context for the generic direction towards which harmonic series would evolve in some of the later works in this study. A minor curiosity emerges, however, from the Parks IV genera system in that it depicts the reverse situation in that the IC3 and IC4 genera score more highly than the diatonic-related IC5.

Section 3 is, if anything, more clearly diatonic than the previous section, with each of the genera systems in general agreement regarding the predominating species. It is interesting to note that the augmented-type genera have all but disappeared from prominence in any of the genera in this section (Example 7.12). The fourth section finds the systems in agreement, although the domination of G3 in the Fortean system (and the corresponding strength of the diminished-seventh genus in the PGS, with IC3 in close second in the Parks IV system) is perhaps not intuitive, given the chromatic material in bars 18. The return to prominence of the augmented genus is substantiated by the Parks IV system (in which the IC4 genus is in first place), but not captured by the PGS, which places the combined scale genus and the diatonic genera in second and third place respectively (perhaps supported by the instance of 7-32 in the top two of the K*/Kd genera system). Like in Section 1, the PGS portrays the passage from a more conservative harmonic viewpoint, whereas the Fortean system underlines its progressive aspects.

In Section 4, the domination of G3 is clear from Example 7.13, which confirms that the only sets outside its purview are two of the three sets of the vocal line (3-4 and 4-14) and the set of the harmony at the beginning of bar 19 (which are captured by G4), alongside the whole-tone set which occurs at the end of the section (4-24 – note that its complement, 8-24, begins the following bar). All four of these sets are part of the 7-35/34/32 genus which governs the PGS.

iv) Summary of pc-set genera

The table in Fig. 7.4 summarises the generic model of *Wenn Vöglein klagen.* The table shows that although a wide range of genera types are used in *Wenn Vöglein klagen*, some interesting observations are possible. First there is the almost complete absence of the chromatic genera, underlining that the harmonic species extends well beyond the increased use of chromatic segments. Secondly, the prevalence of the augmented genus (G4), tempered to some degree by whole-tone genera (whether suggested by the 7-33 genus of Section 1, or the 4-21 genus of the PGS), pervades the whole, and provides a sense of shape to the harmonic species. Thirdly, the Fortean alternative to the octatonic genus, which dominates the first part of Section 1, is G3, the 'diminished' genus, which is the predominating genus in Section 4, the section which leads into the recapitulation of the opening material. The use of a similar type of harmonic species in these two sections underlines a formal correspondence. Finally, the scalar genus (7-35/34/32), which is prominent throughout (yet was not at all prominent in the analyses of the previous chapter), underlines the strong relationship with the tonal repertoire.

Section	Key Genera	Alternative	Supporting Genera
Introduction	7-35/34/32 (extended diatonic)	G4 (augmented)	4-19/17 (atonal) Chromatic genus
Section 1	7-33 (from the K*/Kd genera)	7-35+ (diatonic)	G4 (augmented) 7-35/34/32 (extended diatonic)
Section 1 Phrase 1	Octatonic	G3 (diminished)	7-35+ (diatonic) 7-35/34/32 (extended diatonic)
Section 1 Phrase 2	G4 (augmented)	7-35+ 4-21+ (whole-tone)	G11 (dia) 7-35/34/32 (extended diatonic)
Section 2	7-35/34/32 (extended diatonic)	G12 (dia-tonal)	G4 4-19/17 (atonal)
Section 3	7-35+ (diatonic)	G11 (dia)	G12 (dia-tonal) 4-21+ (whole-tone tetrad)
Section 4	G3 (diminished)		G4 (augmented) 7-35/34/32 (extended diatonic)

Fig. 7.4: *Wenn Vöglein klagen*, summary of pc-set genera by section

D) Conclusions

A common thread has emerged in respect of each of the three perspectives. The harmonic analysis identified that three main regions exist in this work, that the tonics of the three divide the octave into equal intervals, and that the tonics laid out in succession form an augmented triad. That is, the application of a T4 transformation on any of the three would generate one of the others, creating a closed circle of association. Moreover, the augmented triad was viewed as underpinning the succession of chords at the opening, both in terms of their relation with each other and their functions in terms of the regional structure of the whole. The motivic analysis observed that articulations of the augmented triad at the opening lead to the generation of one of the motif-forms (Motif θ) which is based on the augmented triad. Finally, the pc-set genera analysis observed the prominence of genera based on the augmented triad, and although the predominance of such genera was not unequivocal on each occasion, its recurrence was significant and, supported by the recurrence of the IC4 genus in the table in Example 7.4 it confirms the importance of IC4 to the harmonic species of the work. The augmented triad, with its symmetrical properties, therefore plays a consistent role in the way in which this work's relationships can be modelled both at surface and background level.

Another important characteristic identified here is the fact that *Wenn Vöglein klagen* makes use of motif in a thematic manner, rather than through use of extended developing variations (as were found in *Ghasel* or even *Nie ward ich*), which underlines their link with the style of composition he identified with *Pelleas und Melisande*, rather than with the developing variation of which his later music would make use. The analysis of pc-set genera also points to a degree of conservatism in the style and structure of the harmonic species, with the 7-35+ and G12 genera recurring throughout.

i) An interpretation

The motivation for the choice of text is perhaps something of a mystery, as, in the period around 1903-4, Schoenberg does not seem to have suffered from the experience of losing a loved one as depicted by the sonnet. This may therefore suggest that a more abstract or personal association lies behind its appeal. Although one could conjecture with regard to the identity of such a metaphor, as was done in respect of *Nie ward ich*, there is very little support for proposing that a similar metaphor exists in respect of this *Lied.*

Chapter 8: The 1905 *Lieder*: Analyses 8-12

The final five analyses begin with the last work of Op. 8 to be written, the short *Wunderhorn Lied, Sehnsucht*, of April 1905. This period is generally believed to be that in which Schoenberg was finalising the string quartet which was to become Op. 7. For reasons which will become apparent through the technical analyses, *Sehnsucht* belongs with the last few Lieder of Op. 6. Stylistically, its sparse textures and light rhythms suggest alignment with this group, rather than with the more contrapuntal character of the Petrarch Lieder.

The *Lied, Der Wanderer* (not discussed in this study), was also begun during this period, yet not completed until October. Indeed, the second half of October 1905 saw the composition of a number of Lieder, in a twelve-day period in which, like December 1903, a number of *Lieder* were composed in a very short space of time. These short creative bursts support the idea that these works can be regarded as highly experimental, in which technical procedures and specific harmonic species can be regarded as the elements that formed the main grounds for experimentation. This argument will be developed further in the conclusion chapter.

Analysis 8: Op. 8 No. 3, *Sehnsucht*

This short *Lied*, based on a *Wunderhorn* text, appears to have been written in April 1905[1] during the composition of the first String Quartet. Intuitively it is perhaps reminiscent of the songs of Mahler, not the least on account of its choice of text, but also because of the clarity of the texture and the consistent, gentle triple meter. There is considerable historical evidence that the December 1904 performance of Mahler's third symphony in Vienna had a remarkable effect on the young Schoenberg,[2] in which, as Stuckenschmidt argues, Schoenberg turned from critic of Mahler's works into their champion.[3] Perhaps during the course of 1905, his interest in Mahler's style led him to compose *Sehnsucht* as a kind of study of Mahler's earlier vocal works.

Certainly, these Mahlerian features offer a strong contrast with the intensity of the other songs of the Op. 8 set, particularly the Petrarch songs which it follows chronologically, and the drama of *Das Wappenschild*, which sets text from the same *Wunderhorn* source. The following analysis will argue that the more obvious differences in style mask a similarly different approach in terms of motivic and harmonic content.

A) *Form and motif*

i) Phrase

The text of this poem from '*Des Knaben Wunderhorn*' comprises two stanzas of four lines in a folksy style, in which each second line (within the four) rhymes. The setting also divides the text into two parts, not into a set of two four-line patterns, but through separation of the first six lines from the final couplet by means of a short orchestral interlude. The division is marked structurally in Schoenberg's setting in that the second part is a shortened variation of the first.[4] For the purposes of the analysis, *Sehnsucht* has been broken into sections as shown in the table in Fig. 8.1.

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1. This is the date of of '*Quellen C*', the fair copy of the full score with three minor differences from the published score (see Schoenberg 1981b: 94-103, which refers to Archive Nos 314-318). It appears that sketches, written in three staves, differ substantially in the ending of the postlude (See Schoenberg 1981b: 95-96, in reference to Archive Nos 319-320).

2. See, for example, the first letter he wrote to Mahler, quoted in part in Stuckenschmidt's biography (see Stuckenschmidt 1977:103).

3. Stuckenschmidt 1977:103.

4. In the setting of the second part, the first line of the couplet is extended by repetition of the phrase in the text '*es scheint kein Tag*'.

Section		Bars	Text
Introduction		1-7	
Part 1	Section 1	8-18	lines 1-3
	Section 2	18-31	lines 4-6
Part 2	Section 3	32-42	line 7
	Section 4	42-51	line 8
Postlude			

Fig. 8.1: *Sehnsucht*, the sectional structure

In Part 1, lines 1, 5 and 6 are set to four-bar phrases, articulated by cadence and/or a uniformity of texture. Lines 2 - 4, however, are somewhat more continuous, with two brief half-cadences at bars 17-18 and 18-19, articulating the words '*ich merk*'. The former defers to the line structure of the text and is used by the pc-set analysis as articulating the break between sections, while the latter is in accordance with the syntactical structure of the text, separating clause from the main statement. The other line division (between lines 2 and 3) is less clearly marked, although it could be argued that it is accompanied by a change in the motivic character of the vocal line, in that the semitonal figures give way to more angular patterns.

ii) Motivic analysis

The introduction comprises two phrases. The material of the first can be shown to form the motivic basis for the entire song, and therefore can be viewed as a *Grundgestalt* (see Example 8.1, discussed in detail below). The correspondence between various dyadic associations in the introduction demonstrates the nature of this process, as shown in Fig. 8.2 below.

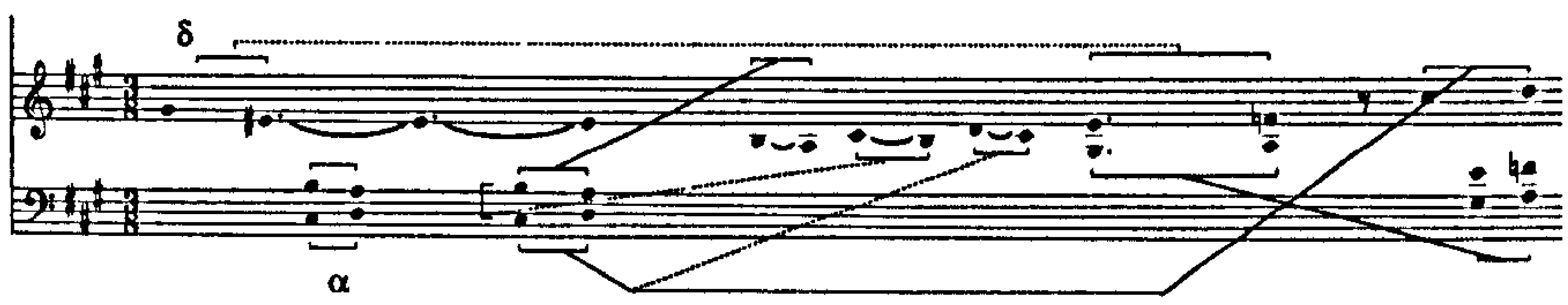

Fig. 8.2: *Sehnsucht*, Opening dyadic associations

The α motif is defined as the rising semitone, initially heard in the lowest part, while the δ motif is formed by the opening descending third. The pitch-class associations within and between the two dyads of bars 1 and 2 generate the subsequent monody (bars 4-7, *cor anglais*/oboe). The culmination of this second phrase is another two-dyad succession (bars 6-7), which consists of a pair of α motifs. The connection is made explicit by the entry of the vocal part, which articulates the pitch-classes of the three α motifs from the opening dyads. Harmonically, the vocal part also clarifies the triadic content of bars 6- 7, revealing a C♯ and D minor triad succession which also recalls the dyads of bars 1-2. Motif δ plays a less significant role in the introduction, with its pitch-classes G♯ and E♯ prominent as the highest and lowest notes of the succession in bars 6-7. Its motivic significance is nevertheless more apparent later in the song.

The motivic cells of the introduction influence the shape of the vocal line. Example 8.2 (Vol. 2), traces the entire vocal line in terms of the motifs α and δ (represented by brackets and 'broken brackets' respectively). Although the size and scale of these motifs contrast that of other songs discussed, and perhaps might more closely correspond to what has been called 'motivic features' in other analyses, the absence of larger scale motivic formations, the transparency of the texture, and the fact that these motifs constitute the *Grundgestalt* itself suggests their status is properly that of motif, from which developing variation appears to flourish. The subtlety of the developing variation can be illustrated by focusing on the phrase in bars 10-12. The inverted form of the α motif in bar 10 is governed by a new rhythm that presents the motif as two quavers, while retaining the rhythmic component from its instances in bars 8 and 9 (by adding the extra C♮ on beat 2). In bar 12 it is this quaver-quaver rhythm, generated by the extra C♮ moving to B in bar 10, which serves as the rhythm for the new α figure.

The α motif of bar 13 becomes the basis for a rhythmic variant in bars 19-20 heralding the return of the material from the introduction in bars 23-25. Other variants culminate in the combination of α with δ in bar 28, echoing (by means of retrograde-inversion) the motif-form of bars 12-13 which has been labelled β in the example. The second stanza, which is in effect a truncation of the first, offers no extension to the variation process established in the first.

Example 8.1 (Vol. 2) shows the motivic cells in the context of the complete texture. The following section will highlight some of the details which have been annotated on the score, all of which can be traced back to the introduction. The dyad succession in bars 6-7 forms an ostinato which continues to bar 10, amid distinct triadic formulations.[5] The semitonal associations established in bars 8-9, form the shape of vocal line in bars 12-14 (as noted in the score). Indeed, the semitonal-dyadic associations established in the introduction and in the first phrase are also continued in the orchestral texture in bars 11-14. Bar 11 therefore forms a re-composition of the pc content of bars 1 and 2 as indicated in the example: the sustained E♯ in the upper line is associated with a C♯/D in the bass line, while the B and A♮ of the introduction are transformed into A♯ and B. A similar re-composition occurs in bars 12 in respect of bars 6-7, in that the F/E♮

5. These two form pc-set 6-Z19, as will be discussed below.

and A/G♯ linear pairs are both embedded in the texture of bar 12, while in bar 13 the A/G♯ is associated with C♯/D. The harmonic context of these re-compositions is varied in each case.

In bar 12, the string accompaniment picks up the shape of the three-note figure (identified as Σ) in the vocal line (in bar 12) invoking rhythmic diminution and a different successive-intervallic structure.[6] The square brackets in the score (bars 12-17) trace the variations of the shape. Fig. 9.2 below illustrates that a 'retrograde-inversion' transformation results from the successive variants in this passage.

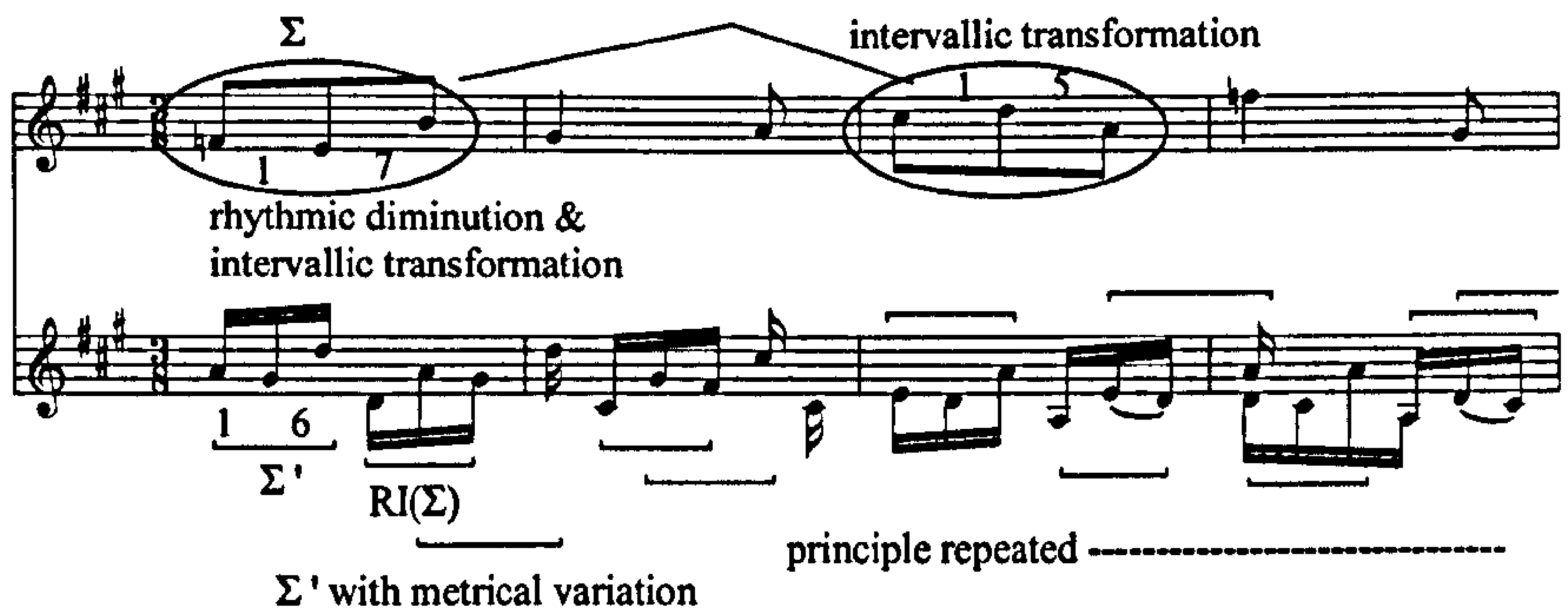

Fig. 8.3: *Sehnsucht*, bars 12-15, retrograde-inversion of 'Σ'

The passage in bars 21-31 is also based on the introduction. It can be divided into two parts, the first (bars 21-26.1) recalling the introduction at pitch level while the second (bars 26.2-31) transposing the main content up a semitone. Each part includes an anacrusis that precedes the recall proper (bars 21-22, and 26.2-27), in which the dyadic associations mentioned above reappear. In the first anacrusis, the E/F oscillation (bars 21-2) and the A/G♯ in the vocal line recalls bars 6 and 7, while, in the subsequent phrase, the dyads of the introduction have become chords which include the oscillation between D and C♯, as well as A and G♯ (E♯ acting as a pedal throughout). In the second part, the anacrusis (bar 26-7) includes the three dyadic pairs of bars 8-9 within an alternative harmonic framework. The main content of the second ostinato (bars 28-9) forms a transposition of bars 23-25 up a semitone, providing further variation of the introduction. The δ motif appears in two separate lines (the vocal line as well as in the upper woodwind) a tritone apart, while the α motif appears at the D/E♭ level. Hence, in this passage, the δ motif appears frequently, while the α motif appears just once, reversing the pattern of the earlier ostinato. At the same time, the C/B♭ line in the oboe part emphasises the relation to the first dyad in bar 1.

6. This is the case in spite of the three figures being of the same pc-set.

The conclusion to Part 1 transforms that of the introduction by inversion, in that it comprises two-dyad successions based on a pair of falling (or inverted) α cells in the original rhythm, with the concluding dyad comprising the same pcs as at the end of the introduction, F and A. As noted earlier, Part 2 is largely based upon Part 1, and there are no further significant motivic developments, although a few of the reiterations have been noted in Example 8.1.

Therefore, the pervasive motivic structure of the *Grundgestalt* of *Sehnsucht* exemplifies the principle of developing variation with a degree of conciseness that has not been seen in the works analysed so far. The pervasive nature of this developing variation, and referential treatment of motivic cells, is perhaps reminiscent of the early *atonal* works of Webern, yet, as the following section will show, it remains underpinned by a harmonic syntax which places it firmly within the category of Schoenberg's late tonal style.

B) The harmonic perspective

i) Part 1

Although the final tonic of this work is A major, there are few passages which are intuitively indicative of A major in this *Lied*. The tonality of the introduction, for example, is inconclusive. The E♯ of the opening δ motif suggests A major's relative, F♯ minor, which is confirmed to some extent by the double-dyad progressions which might support a V-VI progression in the context of F♯ (see bars 6-7 in Example 8.1, Vol. 2). However, the E♯, sustained for three bars, does not rise to the tonic as it might in a normal V-VI progression, and eventually receives support as the third of the D minor triad in bar 8 (an interpretation which is also valid in bars 1-3, as indicated by the annotated score in Example 8.1).

Bars 4-6 are strongly indicative of A major, but in the wider context, F♮ and A (bar 7) also imply the influence of the minor subdominant, D minor. Overall, A major serves to link its relative minor, F♯, with D minor (its minor subdominant) and indeed, for the most part, the *Lied* can be analysed in terms of these two regions. It is clear, however, that Schoenberg's model of the regions provides a clear depiction of the regional situation - A major acts as a tonic which links the two regions, submediant (or relative minor) and minor subdominant.

The progression in bars 1-3 provides the harmonic model for the beginning of the first section, comprising two second inversion minor triads with roots on C♯ and D. Bars 10-11 suggest movement to D minor's relative major, F major, and in this context the figure in bar 10 provides an illustration of the referential nature of Schoenberg's conception of harmony, with respect to its 'non harmonic tones'. Thus, rather than forming an accented passing-note to the F-A dyad, the E/G♯ dyad represents a reference to the dominant of A major, which oscillates with an embodiment of the minor subdominant. Yet its primary *raison d'être* is the motivic reference discussed in the motivic section (that is, it acts as an extension of the ostinato passage which was begun in bar 6).[7]

The chordal classifications of the next phrase (bars 12-19) confirm the significance of both regions (F♯ minor and D minor), and bars 13-14 offer a juxtaposition of the two tonics (F♯ minor and D minor). Note that between bars 14 and 15, the harmony lingers on D minor, but the chord which intervenes is a ninth chord on G (IV of D minor), where one might have expected an A chord. This is one of numerous occasions where Schoenberg uses the subdominant chord as a kind of augmented-sixth, as a means of sustaining a tonality in an analogous way to the dominant function. Other points of interest in this phrase include the somewhat fleeting *Tristan* chord at bar 16 (1st beat), providing perhaps a musical metaphor for the word '*Schatz*' ('darling').

Bars 15-20 prepare a cadence to F♯ in what is the most diatonic passage in the entire song, but it gives way quickly to D minor (prepared in the vocal line of bar 20) in the recall of the introduction (bars 23-26). The reiteration of this passage a semitone higher in bars 28-30 suggests a different harmonic context from the implicit transfer of region to E♭ minor (up a semitone). This is achieved by the addition of pitch-class C♮ (making the second chord a half-diminished-seventh with root C), while the preceding D chord remains a dominant-seventh on D. The two chords cannot easily be categorised from the viewpoint of a single region on its own, but the consideration of D minor's own subdominant minor region, G minor, offers a rationale for the altered notes. The progression can also be interpreted in terms of F minor as movement between an altered dominant and the submediant,[8] which is confirmed by the cadence at the conclusion to the section that finds F major established as the final tonality.

ii) Part 2

The initial phrases of Part 2 are more directed in terms of their tonal articulation than the corresponding section of Part 1 because of the reiteration of the dominant/tonic progressions

7. The pc-set analysis will offer further view of the significance of these bars to the coherence of the passage.

8. One could also view this half-diminished-seventh as a ninth chord with omitted root, suggesting a III9 classification which moves to III, yet this fails to shed any further light on the progression.

(rather than vii-I followed by a set of chromatic progressions) in the tonic key of A major. From bar 38 this is followed by D minor, although F♯ minor is suggested through its dominant in bar 42. Thus, the two dominants of the predominating regions, F♯ and D, are juxtaposed in bars 42 and 44, the latter (bar 44) in anticipation of the return to D minor in the manner of the model of bars 21-23 in the first stanza. There is a significant variation, however, in that the expected D minor chord is replaced by an F minor chord in bar 48 (c.f. bar 23), before the subsequent progression restores the D minor triad which appeared in the earlier section. Although this is not an obvious consequent to the C♯ chord functioning as VII, the functional progression it suggests (VII-III) finds sympathy in *HL*, where Schoenberg's advocacy of this progression is abundantly clear.[9] A more likely reason is that the F-A♭-C chord offers a verticalisation of the δ motif, which is recalled somewhat decisively at this point.

iii) Postlude

A major appears more consistently in the postlude, although its context suggests a role as a form of dominant to D minor. The final cadence itself is somewhat unusual. A major is approached by the augmented triad on F (which includes A), which has been projected through the upper lines of the coda (bars 53-54, 56-58, and 59-60). There is perhaps some significance in the fact that the E♯ (bar 56-57), becomes an F in bar 59 and 60, falling to the final E♮ in order to effect the final cadence, a role that confronts its function in terms of F♯. It has to be noted, however, that during the course of the entire *Lied*, E♯ never rises as a leading-note to F♯, despite the clarity of the articulation of the region of F♯, perhaps indicative of its role in terms of D minor, the consistent 'alternative' region in the work.

The absence of any clear articulation of the F♯ region is also significant, although it might be construed to be present through 'references'. The suggestion of its dominant C♯ seventh in a *Gestalt* which recalls the *Grundgestalt*, in bars 56-57, implies a potential progression which is not actualised. The unusual G seventh chord of bar 54 could also be construed as implying an augmented-sixth type progression (through the G and E♯) to an F♯ chord which never comes. One might claim, therefore, that the tendency towards the region of the submediant (F♯) is neutralised, in the manner described in *HL*, as discussed above.

The harmonic structure is characterised by the absence of the A major region, or rather the emphasis upon A major, expanded by the regions of the relative minor and the minor

9. See Schoenberg 1978: 50.

subdominant. It is the absence of A major's dominant which is particularly striking, an absence sustained into the final cadence.

C) *The post-tonal perspective*

The examination of *Sehnsucht* from the viewpoint of the post-tonal perspective is divided into two parts; in the first, the segmentation into pc-sets focuses on the pc-set relationships between a small number of those sets, while the second focuses on a much larger segmentation, in which the pc-set genera of the segmentation is examined. Both refer to the segmentation shown in Example 8.3 in Vol. 2.

i) Pc-set theory

As the motivic analysis demonstrated, the pc content of bars 1-3 is reiterated linearly in bars 4-7. The diatonic character of the work suggests that it is not surprising to find that the set formed by the latter is set 7-32, the harmonic minor scale. The last six notes of this set, which are extracted to form the opening of the vocal line (bars 8-9), form the ubiquitous set 6-Z19 (complement of the signature set). As in *Natur* and *Traumleben*, it is formed here by two triads of the same mode, the roots of which are a semitone apart. In bar 10, the new notes C♮/B♮, which replace C♯/D♮, aggregate with the invariant set 4-7 to form a further instance of set 6-Z19 (i.e. the inverted form), while the first two beats of bar 11 form pc-set 5-16, a derivative of 6-Z19. Not surprisingly given the pc content, bar 15 forms set 5-21, which is also a derivative of set 6-Z19.

Bar 19 once again unfolds the harmonic minor scale set 7-32, which again articulates 6-Z19 in the last part of the bar. The recall of set 6-Z28 in bars 23-26 acts as a prelude to the recall of the same set in bars 28-29, but note that although the motivic content of the model is recalled, this is not a mere transposition of the earlier pc-set, but a transformation involving transposition and inversion.[10] The following bars see the addition of F♮ (the tonic of the cadence at the end of bar 31) which renders the pc aggregate of this ostinato passage set 7-32, that of the harmonic minor scale in inversion. The last two bars produce set 5-Z18, one of the components of set 6-Z19. Set 6-Z19 itself reappears as aggregate formed by the vocal line in the first part of the second section in bars 35-37 (a recomposition of bars 12-15). It also appears linearly in the cello line in bars 42-43.

10. Forte's concept of pc-set assumes inversional equivalence. This assumption ignores the subtlety of the present observation, where the motivic content is recalled, yet the recomposition presents an exact inversion of the aggregate interval patterns set up by the ostinato.

The relationship between 6-Z19 and the harmonic minor scale set, 7-32, might be conveyed in terms of the former representing the three pairs of semitone-related 'two-note' groups within the harmonic minor scale (i.e. notes 5-7 and 1-3 of the scale), and it seems likely that many pc-set relations in Schoenberg's late tonal/early atonal works could be explained in such a manner. Therefore, the recurrence of 6-Z19 within the context of 7-32 in both prime and inverted forms does suggest a certain degree of 'set-consciousness' on the part of Schoenberg.[11] In general, the appearance of these patterns in *Sehnsucht* is confined to the ostinato patterns and as such suggests a way in which 'set-consciousness' may have presented itself to the composer as a viable compositional technique: that is, within an ostinato, the manipulation of interval patterns is easier to manage than in more contrapuntal textures. Indeed, pc-sets in this sense can act as an abstracted resource upon which ostinato passages can be based.

Not all the ostinato passages, however, are derived from set 6-Z19. The octatonic scale plays a part in the passage which intervenes between the two parts in bars 32-34. The hexadal octatonic set 6-Z13, which appears as an articulated segment of this octatonic, has already been noted in bar 11, where its relation to 6-Z19 was made apparent through the five-member set common to both, 5-16. Of course, the octatonic hexad (6-Z13 – (0,1,3,4,6,7)) resembles 6-Z19 (0,1,3,4,7,8) in that it replaces the constituent 4-7, which forms the invariant basis of passages unfolding 6-Z19, with the separately delineated 4-3. The two tetradal sets are related in that they each contain two semitonal pairs (i.e. two ic1s), although the interval between them is different. 4-3 is, of course, the basis of the octatonic aggregate. These issues will, in a sense, form the basis of the pc-set genera analysis which follows.

ii) Pc-set genera

In order to examine the harmonic species of *Sehnsucht*, the somewhat detailed segmentation in Example 8.3 (Vol. 2) has been grouped into four sections with separate introduction and postlude.[12] Examples 8.4 and 8.5 show the results of the genera analysis across the four genera systems, before and after reduction.

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11. Discussed earlier (75), 'set-conciousness' is invoked by Forte's 1978 article, which discusses pc-set aspects of the Op. 6 collection.

12. This is necessitated to some degree by the nature of genera analysis, which is less effective when it examines large segmentations in a single matrix, obscuring some of the generic nuances in the detail of the musical surface. The generic profiling of large groups of sets also makes the task of

The introduction has been subjected to two examinations: the first examines its content in isolation, while the second places it (given that there are only 5 sets) in the context of the first phrase of the setting. It is thus clear that the harmonic minor scale-based content of the introduction (as borne out by the PGS and the K*/Kd genera system) interacts with the octatonic and diminished-seventh genera which are strongly represented in the initial part of Section 1 (in particular bar 11), through its opening content (represented as set 6-Z28).[13]

The PGS portrays Section 1 as having a basis in the octatonic and diminished-seventh genera, (with support for its prominence from the Parks IV system, and the second place accorded G3 in the Fortean genera system) although the 7-35/34/32 genus is also prominent and has a considerably greater number of hits.[14] The K*/Kd genera system provides focus on this factor in that it places the genus based on K* of 7-32 (the harmonic minor scale, and one of the components of the 7-35/34/32 genus) in second place, and the fact that it has the same number of hits confirms that the segmentation hits on the harmonic minor scale component of the 7-35/34/32 genus exclusively. The Squo of this genus is marginally higher than that of the octatonic and diminished-seventh genera, indicating the significance of the scalar construct. The genus formed by the K* complex of 8-18, with a Squo of 0.0846 is also highly significant,[15] as it includes all of the non-octadal sets in the segmentation.

These constructs can be discussed with reference to the contexts of the various segments in the segmentation (see Example 8.6 to reconcile the matrix of Section 1 with the segmentation in Example 8.3). The key octatonic segments occur in bars 11 (6-Z13) and 16 (7-31) and the linear bass line, while the diminished-seventh elements include the 6-Z28 and 6-Z29 segments in bars 12, 15 and 17, and 8-17 which extends through bars 6-10. It also includes the 6-Z28 element from the

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relating the generic theory to the musical surface more difficult than when examining short phrases.

13. Recall that 6-Z28 is in the octatonic genus by virtue of its Z-related correspondent, which is embedded in set 8-28.

14. Although it might be argued that the significance of a predominating 7-35/34/32 is diminished as it simply represents 'the scales' which are the proper domain of tonal music, there are two counter arguments. Firstly, the fact that generic theory is capable of distinguishing diatonic-type genera from other types of harmonic species suggests in itself a significant observation. Secondly, because the pc-sets invoke inversional equivalence, it may not be the case that all segments so labelled are direct scalar constructs. Examine, for example, the two instances of 6-Z19 in bars 6-10. The second could be regarded as a component of the harmonic minor scale of A minor, whereas the first does not form a component of any scale. Strictly speaking, the diatonic character of the 7-35/34/32 genus is tempered to some degree by inversional equivalence.

15. This genus occupies sixth place in the K*/Kd complex chart.

vocal line (bars 13-15), which is isolated as a segment within the harmonic minor scale (7-32) formed by the entire phrase. The 7-35/34/32 genus engages directly with the 6-Z19's which make up the detail of bars 6-10, and also encapsulates bars 13-14. Were the 7-32 genus to be invoked, its higher Squo would ensure it encapsulated the elements from the diminished-seventh genus (but not the octatonic passages which it does not 'hit'). All sets could, alternatively, be deemed to be part of the larger 8-18 genus which, in this context, must be regarded as a conjunction of the harmonic minor scale and the octatonic segments.[16] In this way, the generic disposition of the passage can be modelled at its most detailed in terms of the genera suggested by the PGS; a more general level is invoked by including the harmonic minor scale, while the entire segmentation can be explained in terms of the K* complex of set 8-18.

The Squos of the Fortean system suggest that it, too, should be taken into account in describing this passage. G9, which dominates all of the Fortean generic interpretations of this passage, is designated 'atonal-tonal', on account of its progenitor hybridity: 3-4 (the 'atonal' component) alongside the major/minor triad set, 3-11 (representing the tonal component).[17] G9 and G3 overlap considerably (both include the overtly octatonic sets such as 6-Z13 and 7-31), together accounting for the majority of the segmentation, which, because there is little intuition about the nature of the hybridity of the main genus aside from the title 'atonal-tonal', is less useful analytically.

The generic disposition of Section 2, as suggested by the four genera systems, indicates a degree of similarity to that of Section 1. This reflects the fact that some of the prominent sets in Section 1 are recalled in Section 1.[18] There are differences, however – for example, the diminished-seventh genus (4-28+) has disappeared from the 'top three'. Moreover, the sets which identify the octatonic genus are less characteristically octatonic, and although 6-Z28 occupies a central

16. This would omit, of course, the other octads, but the musical content they depict is essentially covered, in any case. The musical segment represented by 8-17 is covered by its breakdown into component 6-Z19s, and 8-25, the set of the bass line, is covered by its component part 7-31. The note which extends 7-31 into 8-25 in fact falls outside this section.

17. It should be recalled that a central theme of the current study is that, although the Fortean genera sometimes (but not always) appear to score well in terms of the Squo calculation in respect of a certain passage, it is not always clear what the actual genera themselves represent. For example, in this case, G9 comprises the intersection of two Kh complexes, and although 3-11 and 3-4 are 'understood' intuitively in themselves (as is their role in 'tonal' and 'atonal' music), it is less intuitively clear how for example a heptad that is a complement of a pentad that includes both (and is still retained by Rule 2) shapes a genus into something which is 'atonal-tonal'.

18. The groups of sets of the respective sections are not the same, however, as the Difquo between the two groups is a substantial 0.621.

position in the texture, the marginal superiority of the octatonic genus (as indicated by the Squo calculation) is qualified by the fact that the 7-35/34/32 genus, which has twice as many hits, includes all of the members of the octatonic genus (see Example 8.7). The atonal 6-Z19/44 genus appears in the top three, but disappears from the reduced matrix because, like the octatonic genus, its key members are included within 7-35/34/32. Once again, the Fortean genera system is dominated by G9, which is followed by a G4 that is eliminated in the reduced matrix. The fact that the matrix is spread over six genera suggests that the system does not offer a very clear picture of the generic profile (see Example 8.8).

The previous discussions have highlighted the fact that Section 3 is a recall of Section 1 (from bar 12 onwards). Therefore, it is little surprise to find that its generic profile is very similar to its counterpart. The priority of the diminished and octatonic genera have, however, been reversed, despite the overtly octatonic content in bars 32-34, largely because the variation of the detail between the two sections has highlighted components from the diminished-seventh genus which are not part of the octatonic genus, such as 9-11 in bar 37, 8-18 in bar 41, and 7-16 in bar 39. Along with 6-Z28 in bar 37 and 6-Z29 in bar 35 (not to mention the octatonic content of the interlude, and the previously mentioned 8-17 of the vocal line) these sets represent a stronger presence in terms of the texture than this genus's counterpart in Section 1, indicating a true independence from the 7-35/34/32 genus (see Example 8.9).

In the final section, the Fortean G4 genus identifies (and prioritises) a group of complement-related pc-sets (5/7-21, 5/7-26 and 6-Z19/Z44) which are prominent in the texture. Unfortunately, although the Squo scores of the top three in the Fortean genera system are higher, the reduced matrix does not give as clear a generic profile as the PGS. The top scoring 6-Z19/44 genus from the latter is also based on 6-Z19/Z44 and 5/7-21, and though it does not include 5/7-26, it adds the tetradal components 4-26, 4-18 as well as sets 5-Z18 and 5-32 (See Example 8.10). The apparent importance of both genera suggests the construction of a hybrid genera system as shown in Example 8.11, which depicts all 13 sets within the context of just three genera.

The genera of the pc-sets of the postlude suggest a reversion to diatonic-type genera. G12 dominates the Fortean system, while the genus based on the major scale (the 7-35+ genus) dominates the PGS. The K* complex of one of the hexadal members of the latter provides the highest ranking genus from the K*/Kd genera system (set 6-33), and its content eclipses that of the 7-35+ genus.

iii) Pc-set genera summary

The summary of genera shown in Fig. 8.4, indicates a number of constant factors. Firstly, the octatonic genus and its symmetrical correspondent, the diminished-seventh genus, predominate over three sections, the first two of which can also be regarded as being dominated by the genus formed by the pc-set of the harmonic minor scale. The segmentations of these sections thus represent the common ground between the octatonic genus and that formed by the harmonic minor scale. However, in the final section of the work, the signature genus predominates, suggesting that its harmonic species constitutes a concluding gesture in the direction of atonality. The generic structure of the final passage (in the form of the postlude), nevertheless, suggests a return to diatonic-type genera. Importantly, the whole is governed by the support of the extended diatonic genus formed by the aggregated K* complexes of all scalar types. The prominence of this genus was noted in respect of the Petrarch *Lieder*, and it is clear that the harmonic species which it represents continues into the 1905 *Lieder*.

Section	Key Genera	Alternative	Supporting Genera
Introduction / Section 1	4-28+ (diminished-seventh) and Octatonic	7-32 (from K*/Kd genera) 8-18 (from K*/Kd genera)	7-35/34/32 (extended diatonic)
Section 2	Octatonic	7-32 (from K*/Kd genera)	7-35/34/32 (extended diatonic)
Section 3	4-28+ (diminished-seventh)		7-35/34/32 (extended diatonic)
Section 4	6-Z19/44 (signature)	G4 (augmented)	7-35/34/32 (extended diatonic)
Postlude	7-35+ (diatonic)	G12 (dia-tonal)	7-35/34/32 (extended diatonic)

Fig. 8.4: *Sehnsucht*, summary of pc-set genera by section

D) Conclusions

The analyses of this work suggest a significant deviation from the tonal, and indeed motivic practices adopted by the other works in Op. 8. Although the harmonic analysis demonstrated alternating tonal syntaxes within two regions, the final cadence articulated neither, and it is only in the sense of an extended tonality around the chord on which the work finishes that the final cadence makes sense. Although the second stanza is largely a recapitulation of the first, there are no thematic-type motifs as in the Petrarch *Lieder*. Motivic coherence is achieved rather by means of the variation of ostinato figures and through the manipulation of short motifs which are cell-like in comparison to the other works analysed here. These often take the form of pitch-class-specific dyadic associations. Finally, there is evidence to suggest that the sense of coherence is enhanced by pc-set relations, specifically through the recurrence of set 6-Z19, which appears to have been extracted from the harmonic minor scale. The analysis of genera suggests a degree of consistency, in that the octatonic (and the diminished-seventh) genus predominate over the majority of the work, and, if Section 4 proves exceptional, then the fact that the extended diatonic genus pervades the whole as the supporting genus emphasises the consistency. In this regard, *Sehnsucht* is the only work in Op. 8 in which set theory shows a consistent generic profile (almost) throughout.

The theme of the *Wunderhorn* poem is the yearning for a lost love and of the associated suffering and pain. The tonal instability created by the influence of two potential tonal centres, neither of which exert sufficient influence to act as a stable 'home' key, suggests a metaphor for the suffering of the poem's subject. The eventual resolution to a third tonal centre, without the support of a traditional harmonic cadential formula, underlines this sense of instability, with the suggestion that, given the more generalised level of the extended tonality which the analysis suggests, this is in fact a possible, if not reasonable, resolution to the suffering of the poem's subject.

Analysis 9: Op. 6 No. 2, *Alles*

One might argue that *Alles*, written in September 1905,[1] makes considerable demands on both performer and listener. For example, the vocal part includes some awkward leaps to and from the high register (such as at bars 17-20 and 26 and 28), which neither suit vocal technique nor are attractive to the ear. For the most part, the piano offers little support to the vocal line, and although its texture provides a sense of mystery as suggested by Dehmel's text, as does the predominantly ascending vocal line, the latter appears to be the least successful aspect of the song.

The poem itself describes a nostalgic glimpse of the parent-child relationship (in all probability a father-daughter relationship) as seen by the parent, and one possible reason for this poem's attraction to Schoenberg presents itself through the fact that his first child, Gertrud, would have been between two and three years old at the time of its composition. The poem's context and its circumstances gradually unfold as it progresses - the first verse, for example, could double as a prelude to a scene between lovers. The second is more focused on childhood, and the child's first-steps, combining the image of an 'anemone pressed to your little heart' with that of the tree which, once climbed, provides an outlook upon and link to the world beyond. Clarity of the circumstances only emerges in the third verse where reference to the child's current age mixes with the suggestion that the parent/child relationship is still very much present, even though the latter is now an adult, and the poem concludes optimistically with the parent's reassuring words that whatever one needs to know, life will teach. *Alles*, or 'everything', could be interpreted as 'the learning curve' that life presents, seen through the nostalgic eyes of the parent watching a child grow to maturity. The ambiguity of the context suggested by the first verse could be viewed as reflecting the ambiguity of the father/daughter relationship.

The music's a-thematic character is of interest to the current study, particularly in the way in which it interacts with the motivic analysis and the pc-set analysis. The discussion of motif will take a less conventional approach to that of the other *Lieder* in this study, while the pc-set segmentation will be more rigorous than those previously undertaken.

1. A second *Niederschrift* is dated 6/9/1905.

A) Form and motif

i) Form

The formal plan shown in Example 9.1 (Vol. 2) shows a possible interpretation of the form of '*Alles*', in a style similar to that used in Example 2.1 in respect of *Traumleben*. The diagram is read from left to right, with progress to the right indicating new material, while a new line indicates similarity to previous material. Accordingly, a new line is aligned vertically with the point in the previous musical passage at which the similarity is directed, with the objective that the graph can be read from top to bottom as a set of correspondences. The similarity alluded to in this plan is somewhat generalised, aimed at the level of theme and texture, and is *not* applied in a rigorous sense. Thus, the similarity suggested between bars 12 and 13 does not take into account the kind of transformational process that would be required to derive one from the other. Rather, the similarities indicated in this instance, as elsewhere, indicate a similarity of texture in the majority of parts. Its purpose therefore is to provide as structural overview at the thematic and textural level in order to give a starting point for a discussion of the structure.

Apart from the sectional correspondences, the diagram emphasises two particularly recurrent passages, labelled respectively the opening or 'A' material, and the cadential or 'B' material. Both identify a relationship between the settings of the first and third stanzas of Dehmel's text, suggesting that Schoenberg's setting forms a ternary form in which the setting of the middle stanza contrasts the others. The 'A' material also forms the basis for the piano postlude. Although a textural variation of 'A' distinguishes bar 2 from bar 6 (and it is the latter format which pervades the recall in bars 25-28), the 'B' material is repeated precisely.

The conclusion of the setting of the first stanza is not articulated by an obvious harmonic formula, nor by a passage for piano alone (as occurs after the setting of the third stanza and, indeed, within many of the early songs). It is, rather, a recurring theme (piano RH bars 10-11, denoted ε in the motivic analysis below), which suggests a form of limited closure that is later substantiated by the conclusion of the vocal part, where it repeats this material.

ii) The nature of motivic structure in *Alles*

While Example 9.1 indicates how a generalised correspondence between *Gestalten* articulates a sense of form in *Alles* (in particular, the recall of the first section in the third), the motivic detail illustrates a process of developing variation in which new motif-forms are continually created, particularly in the context of Section 2.

Example 9.2 attempts to identify and collect the motifs which recur throughout the *Lied*, while Example 9.5 presents a motivic overlay in the context of the harmonic analysis of the score. The motivic content conveyed by these examples illustrates a locally-based connection-process in which motifs are reiterated, varied and transformed into new motif-forms within the space of just a few bars. Motifs such as 'ε' and 'ω' are not reiterated after the successions of their localised instances, although they relate to other, later motif-forms through common motivic features as suggested by the example. Motif β by contrast is persistent, appearing at the opening, and recurring throughout the work.

This example of on-going motivic development is indicative of a more comprehensive form of developing variation than has been seen in *Natur*, *Verlassen* or the Petrarch *Lieder* (in which motivic identity remained relatively constant throughout the work) and presents new challenges to the way in which such 'developments' are presented in analytical graphs. The following two sections attempt to offer a generalised view of the most persistent motivic features.

iii) Motivic features (1): the semitonal pair

The most pervasive element common to the motifs identified is the semitonal pair, that is, a group of four notes which can be segmented into two pairs, each pair consisting of two notes a semitone apart. The two pairs are separated from each other by a given interval, and all four notes occur successively, as shown in Fig. 9.1, below.

The harmonic role suggested by these notes can be seen in relation to the E♭ seventh chord (a V chord leading to the following A♭), which predominates throughout the bar. C♭ thus leads to the fifth B♭, while F♭ leads to the root E♭. It is possible to find similar semitonal pairs (with the same harmonic function) positioned prominently in the texture in the following two bars. Thus, in bar 2, the semitones formed by the first notes of the melodic lines (RH piano and voice) may be combined to form a semitonal pair, while in bar 3, the prominent semitones formed by each voice also combine. Harmonically, both pairs perform a similar function to that ascribed to the pair in bar 1. This is shown in Fig. 9.1 below.

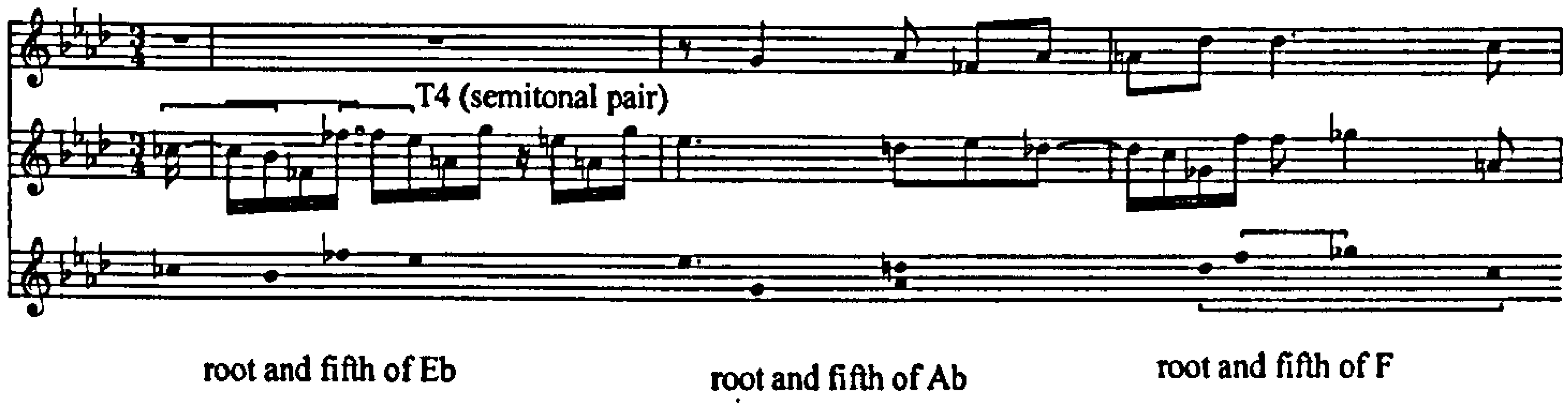

Fig. 9.1: *Alles*, the semitonal pairs

The prevalence of this motif feature at the opening suggests that it may have some significance throughout the song. In Example 9.3 (Vol. 2), the main instances of semitonal pairs which occur as a succession of notes within a melodic segment in the song have been collected, regardless of the interval which separates the two. The transformation functions, which are included in the labels of the bracketed pairs refer to the relation of the second pair to the first. This includes the inversion transformation, which also may be used to describe the relation between the semitonal pairs in bars 2 and 3 of Fig. 9.1 above. Indeed, the inversion transformation can be found in the piano RH passages in bars 3 and 5 (see Systems B and C in Example 9.3).

While Example 9.3 underlines the contrasts rather than the similarities between the semitonal pairs, it does identify the semitonal pair as a common melodic element that contributes to the coherence in Sections 1 and 2. Therefore, the transformation function itself becomes the purveyor of variation, and the different transformations become motivic, in that subsequent variations allude to specific transformations. For example, apart from the obvious connections between Systems A, B and C, one can note that the T4 pair in System B is of similar shape to the instance in the following bar (system D), underlined by the repetition of A-Bb. The rhythmic association between this and the following instance in bar 7 (System E) is clear, but it is surely significant that this is a T4 instance, thus referring to the same transformation observed in System B. Likewise, the relations between System E and F are obvious, but the fact that the new instance is based on T3 (the inverse and ic equivalent to T9), supplemented by an inversional relation to System D, underlines an overall sense of coherence.

The climactic conclusion to the ascending scalar passage in bars 12-17 recalls the original T5 instance in bar 18 (System L) transposed up a tone and within a new rhythmic context, alongside the instance of T5 in the previous bar (bar 17, System K). Finally, it is possible to link the pervasive β motif to the semitonal pair by observing that its interval structure is dependent upon the motivic pair (see Systems M and N in Example 9.3).

iv) Motivic features (2): the semiquaver texture

A second motivic process can be identified which illustrates another aspect of developing variation in *Alles*. It is perhaps intuitively obvious that the pervading semiquaver texture provides an important sense of continuity throughout the song. However, it is less obvious that a form of on-going process underpins this texture. The musical example in Example 9.4 collects and groups the semiquaver textures of *Alles*, through the span of the entire work. Each system comprises a set of musical figures, each of which generally spans a single bar, while exhibiting uniformity through at least one 'motivic' element,[2] in the sense suggested by Schoenberg himself in *ZKIF*.[3] Thus, the syncopated figure, for example, which is rhythmically repeated through bars 2-6 – System 2 on the example – is in contrast with the descending thirds figure repeated through bars 7-11.

With the exception of the first system, all segments have in common a semiquaver rest on the first beat of each bar. System 1, which stands outside this pattern, acts as the initial generator of the motivic content in establishing the rhythmic pattern, in which two semiquavers are followed by a quaver (noted in the rhythmic stave above the first system), and although there is no initial rest, the displaced first beat establishes the syncopated pattern which dominates the semiquaver texture. Note also the rhythmic augmentation of bar 1 in bar 2, shown in System 1.

The five bars of System 2 each reiterate the rhythmic pattern of bar 1. In general, the three-note groups are scalar or triadic, and in most cases articulate a tonal figure. There is insufficient consistency to suggest any degree of independent motivic structure: that is, motif *per se* cannot be posited as a generator of pitch organisation – rather, the rhythmic motifs provide an architecture to which the harmonic structure may be attached.

The 11-note 'descending thirds' figure which dominates the third system contrasts the three-note groups of the previous sections, while the figures in Systems 4 and 5 combine the two patterns: 7-note patterns alternate with three-note groups. The three-note 'accompaniment' groups of System 6 follow on from these three note groups in System 5. Systems 7 and 8 could be listed as one system as the rhythms are essentially the same, but they have been separated in order to highlight that System 7 is a recall of the first three bars of System 2.

2. Note that the paradigmatic aspect of this diagram is virtually the reverse of that of Example 9.1, in that similar material appears left to right, new material begins on a new line.

3. See Schoenberg 1994. Specifically, the section numbered {1:11} on pages 37-39 illustrates Schoenberg's general range of potential techniques for variation of a motif.

Although System 9 derives its rhythm from System 3, it represents new material motivically, while shapes of each of the three figures remain similar. System 3 (bars 10-11) is more obviously recalled by the following bars (shown in System 10). The final system initially recalls System 2 (and System 7) before assuming the three-note rhythmic motif which incorporates the motif labelled 'α' from bar 2 (see System 1).

These two examples of the on-going transformations of motif features serve to illustrate the range of motivic connection which underpins the coherence of *Alles*. The comprehensive and pervasive nature of the developing variations that these models suggest, represents a more comprehensive and pervasive use of the technique than found hitherto, and, together with the developing variation found in *Sehnsucht*, separates these works from either the Petrarch *Lieder* or the 1903-4 *Lieder*.

B) The harmonic perspective

Despite the apparent complexity of the motivic material and the high level of chromaticism, the underlying harmony of *Alles* is relatively simple. Unlike most of the other *Lieder* examined in this study, the harmonic structure does not articulate the point at which the setting of the first verse ends and that of the second begins, although the third verse by contrast begins with a return to the tonic (corresponding with the return to the motivic material of the opening). Example 9.5 shows an interpretation of the harmonic structure, including a chordal reduction.

The reduction emphasises the importance of the suspension as a means of presenting and concealing the frequently straightforward harmony. Indeed, it is the chromatic voice-leading of the semiquaver texture, which suspends the root, third or fifth of each chord, that underpins the motivic analysis discussed above. The technique can be found in virtually every bar of *Alles*, and in many bars on every crotchet beat. Within this context, the underlying harmonic structure is perhaps deliberately simple, with a predominance of V-I progressions in the tonic key, an element virtually absent from the other songs in this study. Nevertheless, the characteristic harmonic traits are in evidence, including the emphasis upon the minor subdominant, alongside the association with the Neapolitan, the supertonic, and the minor v.

The initial five bars assert the tonic A♭ major through the traditional means of progressions from the dominant (supported by the supertonic and submediant). The F♭ at the outset (part of chromatic voice-leading in bar 1, and the more emphatic harmonic construct at the end of bar 2), signals and prepares the minor subdominant which emerges in the second section. The minor v chord (E♭ minor) in bars 7-8 is also indicative of this region, and may be regarded as being prepared by the temporary emphasis on B♭ (supertonic of A♭) in bars 2-3, the dominant of E♭ minor. The three bars with which the section concludes (bars 9-11, see Fig. 9.2 below) offer a form of cadence by virtue of the reiteration of the sequential passage, while the harmony becomes less clear as the sequence continues. The final chord is a somewhat remote G♭,[4] which serves to introduce the distant C minor chord in the next bar by chromatic voice-leading (indicated by broken brackets in Fig. 9.2).

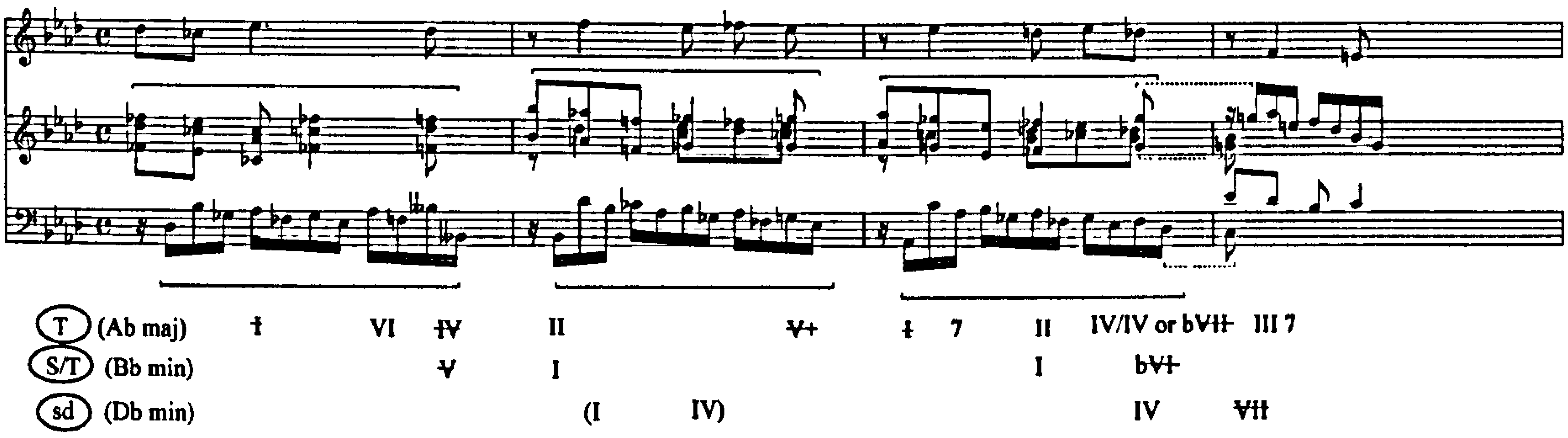

Fig. 9.2: *Alles*, bars 9-12, harmonic analysis

In terms of functional classification, the harmonic progressions appear to break down during bar 11, and so, through harmonic decay (as defined by lack of functional classification), the harmony articulates the conclusion to the section suggested by the line structure of the verse.

The second section is dominated by the influence of the minor subdominant (C♯ minor), as exemplified by its own Neapolitan, D major in bar 15, the ensuing V-I progression in bars 16-17, and the A major and E major iterations in bars 18-19. As was the case in Section 1, the conclusion to the section (bars 20-22) is governed by a sequential passage in the LH piano part, in a harmonic context, falls somewhere between A♭ and C♯ (in the form of D♭). The final chord (beat 2 of bar 22) for example is preceded by a half-diminished-seventh on B♭, and the strength of the A♭ bass note with the C♭ in the piano part suggests it be classified as an A♭ minor. However, in this context, the ensuing F♭ and D♭ oscillation in the inner part re-emphasises the minor subdominant, D♭.

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4. In *SFH* (Schoenberg, 1954), the relationship between the two regions A♭ and the G♭ would be flat mediant's dominant, although here it is the natural mediant which follows.

A♭, however, returns in the third verse, confirmed by the V-I progression within bar 25. This return is prepared not through voice-leading prolonging the dominant, but by the reappearance of harmonic units in which the main elements of the region are reasserted in a functional context that suggests A♭. These include, in bar 24, the dominant, the diminished-seventh built on the leading-note, and even the mediant chord, which all precede the V-I cadence to A♭.

The A♭ does not extend through the section as it did in Section 1. As noted above, bars 30-33 do not correspond with bars 7-10 in Section 1. Indeed, as can be seen from Example 9.4, the harmonies reassert the minor subdominant region with articulations of E major, C♯ minor and even F♯ minor, before the suggestion of an E♭ chord is made in bar 33. This heralds the return of the harmonically inconclusive passage with which the first section ended.

The last three bars of the postlude in the piano part provide a final cadence to A♭, which includes all the elements one might expect from a traditional cadence: the dominant, the subdominant, an augmented-sixth and the tonic. However, the order and manner in which these elements appear is less traditional. The voice-leading of the German sixth, suggested by the F♭ and D♮ in bar 39, gives rise to the three-note motivic fragment (a β motif-form) which is reiterated throughout the bar, before articulating the dominant at the outset of the next bar, while the final cadence, perhaps in deference to the significance of the region of the minor subdominant, is a IV-I cadence.

In summary, the peripheral regions which have been identified are (1) the S/T (with the movement towards its minor subdominant, E♭ minor, the minor v of the overall tonality); (2) the ♭SM (E major); and (3) the sm (F minor). But the central source of these three regions, which is the single element that 'extends' the A♭ major tonality is the minor subdominant region, C♯ minor (enharmonic to D♭), which dominates the central second section. The following table in Fig. 9.3 summarises the regional background in these terms.

	sd (C♯)	S/T (B♭)	minor V (G♭)	♭SM (E)	SM (F min)
Tonic (A♭)	~~IV~~	II	~~V~~	♭~~VI~~	VI
minor subdominant (D♭/C♯)	I	~~VI~~	II	III	IV

Fig. 9.3: *Alles*: The regional structure

D) *The post-tonal perspective*

The motivic feature called the 'semitonal pair' discussed earlier has a significant effect on the pc-set character of the work, in that the segments which represent groups of semitone-related notes, such as 6-Z19 and 6-Z13 which were prevalent in *Sehnsucht*, are equally prevalent in the linear phrases of *Alles*, as can be seen in the segmentation shown in Example 9.6. 6-Z19 is particularly prominent in the first and second sections, notably in the vocal line (which sets line 8 of the text) of bars 16-19, in bars 19-20, and bars 7-8. Its complement, 6-Z44, forms the opening melodic phrase (the β motif), and as such is recalled in the postlude (see the bass line).

As the motivic analysis suggested, the textural motif formed by the semiquaver figures at the opening did not reveal any significant degree of similarity in terms of interval patterns. In the light of other pc-set analyses (most notably that of *Verlassen*) it is appropriate examine these figures with from the viewpoint of their pc-sets. The table in Fig. 9.4 shows the relationships, in the context of other sets in the initial bars. The cluster of RxRp relationships in the bottom right of the table, which represent the piano's semiquaver figures (chaining together sets 6-14, 6-16, 6-Z17, 6-Z44, 6-31), is particularly indicative of the intervallic homogeneity of the texture.

	8-17										
8-26		8-26									
5-Z17	K*	K*	5-Z17								
7-34		K	K*	7-34							
6-Z3	K*				6-Z3						
6-Z10	K	K*			R2Rp	6-Z10					
6-14	Kh	Kh	Kh				6-14				
6-16	Kh						R2Rp	6-16			
6-Z17					R0			R2Rp	6-Z17		
6-Z44	Kh	K	K				R2Rp	R2Rp		6-Z44	
6-Z25	K*	Kh			R1Rp				R0		6-Z25
6-31	Kh	Kh					R2Rp	R1Rp		R2Rp	

Fig. 9.4: *Alles*, opening, relations between sets

At the centre of these connections is set 6-16, which is represented by the semiquaver figure in bars 2 and 6, also marking the beginning of Section 2 (bar 13) through a semiquaver figure which does not resemble the earlier instances at all. The same set is formed by the total content in bar 18 (which represents the climax of the phrase). Set 8-26 is another set which recurs, underpinning the pc-set homogeneity of bars 7, 8, 10 and 12, while its key instance is in bars 22-24, where it is formed by the total content of the interlude.

Indeed, it is possible to form a set complex around three nexus sets, one of which is set 6-Z19 alongside its complement 6-Z44 (the Schoenberg signature set). The other nexus sets are 6-Z28 and 6-Z25, and they can all be connected by a single pentadal set (5-32). Example 9.6 classifies the sets in accordance with the nexus set from which each is derived: 'i' represents set 6-Z19, 'ii' represents set 6-Z25 and 'iii' represents set 6-Z28.[5]

The final cadence of *Alles* is interesting for the way in which two prevalent sets are yet again articulated. 7-Z38 (as superset of 6-Z19) is apparent as the partial content of a piano texture, as it was in bars 10 and 13, and as the bass line in bar 38. The β motif, which originally formed 6-Z44, is truncated in its final instance (forming set 4-4, bars 40-41), but the two harmony notes which form its concluding A♭ chord associate with this 4-4 to form an alternative 6-Z44, offering further evidence that the composition of this work was affected to some degree by a form of 'set-consciousness'.

i) Pc-set genera

The influence of the instances of 6-Z19 over the entire musical surface is reflected by the status of the 6-Z19/44 genus in the PGS in respect of Section 1, with hits on over half of the sets in the matrix (20 out of 37 sets), comparing favourably in terms of Squos and hits with the genera of other genera systems. Thus, for example, the Fortean system is perhaps somewhat exposed as it promotes G4 on the basis of a small number of hits, while its Squo does not match that of the 6-Z19/44 genus,[6] and although it appears to receive support from the IC4 genus (in the context of the Parks IV system), ic4 is also supportive of the 6-Z19/Z44 genus.[7] The other high scoring

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5. The fact that there are numerous hexadal sets in Section 1 suggests some difficulty for the set complex. However, the similarity relations suggest a way forward: set 6-16 relates to 6-Z19 through R2Rp, as does 6-31. Set 6-Z17, on the other hand is in Rp with 6-Z19 and R2Rp with 6-16, (not to mention R0 with 6-Z25) and so has been included within the complex around 6-Z19.

6. Another indication of the problematic prioritisation of G4 in the current context is the fact that it scores a very low POF score, placing it in eighth place, in the context of the Fortean genera system for this matrix. Finally, a key indicator proving that the Fortean genera system is not ideally suited to the task of modelling the current segmentation is the fact that the reduced matrix uses 11 of the 12 genera, suggesting a highly split profile.

7. The way in which a given genus relates to a genera system of which it is not part can be modelled, intuitively, by imagining the pc-sets of the candidate genus as representative of the pc-sets of a segmentation. Indeed, the issue can be modelled in *Set Manager* by use of the 'Set explorer' screen. A genus can be loaded into one of the boxes on the screen by using the command 'Show/Load genus system', and 'transferring' the appropriate genus back into the 'Set explorer' screen. The genera screen can be compiled on the basis of the contents of a selected box in 'Set explorer', enabling the user to establish a generic profile of the selected sets (which are the contents of a genus). In this case when the 6-Z19/44 genus is viewed in terms of the Parks IV genera system, the

genera include the 4-19/17 genus, and the 7-35/34/32 genus, familiar from the Petrarch *Lieder* and *Sehnsucht*, which closely shadow the hits of 6-Z19/44, as indicated by the 'before reduction' matrix in Example 9.9.

The most 'perfect' genus, in terms of hits, is that offered by the K* complex of set 9-11 (35 out of 37 hits) which, despite its 156 members (over 75% of all sets) also has the 'comparatively reasonable' Squo (in the context of this matrix) of 0.606.[8] Set 9-11 is the complement of the set of the major and minor triad, and in this sense points towards a tonal basis for the section. It is clear, however, that there are too many sets in the segmentation to facilitate a close study of how the genera interact with the musical surface, and so the generic profile of the section is examined in detail in terms of its parts.

The domination of 6-Z19/44 over the first part of Section 1 is illustrated in Example 9.10. The genus captures all of the trichordal and tetradal sets of the first five bars, alongside the set formed by the first phrase of the RH piano (8-17) in counterpoint with the vocal phrase that spans bars 2-3 (6-Z44).[9] The genera analysis does not capture the connectedness between the hexadal formations generated by the semiquaver piano figures discussed above, in that it tends to represent these as distinctive entities (loosely described by the designations of the various genera – 6-Z3 being chromatic, 6-Z13 as octatonic, etc.).[10] Although the octatonic genus can be noted in second place in the Squo table, it disappears in the reduction process, allowing G12 (understandably) to exert its prominence, on the basis of the opening bar and the more overtly diatonic figure in the RH piano part in bar 5. The chromatic genus is exerted by the two appearances of 6-Z3 and the set generated by total content of bar 2.

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highest Squo is generated by the IC4 genus (although this is closely followed by IC3). When the 4-19/17 genus is viewed in terms of the Parks IV genera system, the highest Squo is also generated by IC4, but its score is almost double that of the second-placed IC3 genus.

8. The term 'comparatively reasonable' alludes to its context in terms of the other Squos generated by the segmentation.

9. The same may be said of the 7-35/34/32 genus, except that it does not include set 3-1, which is included because of its importance in bar 2 (piano RH) and in bar 4 (piano RH).

10. Although this might be seen as somewhat unsatisfactory, given the depiction of 'connectedness' generated by the discussion in the context of the set complex, this offers a useful illustration of the way in which the set complex, and its objective in identifying unity amongst pc-sets, tends to be piece-specific (or even passage-specific), whereas genera tend to offer a wider view of difference between predetermined axioms. It is useful also to note that the Fortean system, based on trichords, and therefore possibly better placed in identifying common elements between hexads, fares little better in identifying connectedness, and even includes some curiosities, such as the suggestion that 6-Z13 is semi-chroma rather than diminished, and that 6-31 is augmented.

In Part 2 of Section 1, the 6-Z19/44 genus moves to second place on the graph, behind the 4-19/17 genus that encapsulates the link between the recurrent hexadal figure 6-16, and some of the other figures such as 6-Z19 itself (in the vocal line, 8-14 and the recurrent 8-26). The lattermost is also part of the 7-35/34/32 genus exemplified by the corresponding LH piano figure in the following bar (bar 11), and which, as in Section 1, shadows much of the content of the higher-placed 4-19/17 and 6-Z19/44 genera. In this way, the matrix rather appropriately models the way in which the more atonal components of the diatonic hybrid scale genus (7-35/34/32) become the focus for two related genera which comprise sets that are significantly less diatonic – the 4-19/17 genus and the 6-Z19/44 genus.[11]

The pc-set content of Section 2, which the discussion of form and motif positioned as a contrasting section, represents a continuation of the dominance of the 6-Z19/44 genus, which is supported by the second place accorded the K* complex of 6-Z19 in the context of the K* intersection system. The Fortean genera system also depicts a degree of similarity between Sections 1 and 2, with two of the top three genera common to both sections, a feature it shares with the Parks IV genera system. Nevertheless, the superior Squo, and higher number of hits by the genera of the PGS, highlights its superior status. In the first part of the section, the reduced matrix (Example 9.12) shows that the 6-Z19/44 genus dominates bars 12 and 13, while bars 14 and 15 marked by the bass line (the set of the melodic minor scale, 7-34) are governed by the 7-35/34/32 genus. Bars 16-19, spanned by the vocal line which forms set 6-Z19, are dominated by segments which form part of its genus.[12] The second part of the section finds the 4-19/17 genus predominant, on account of the instances of 7-11, the reiteration of 6-27, and the 8-22 which spans the top voice of the interlude, none of which are part of the 6-Z19/44 genus.[13] The sets of the latter part of the section (8-26 and 8-22, with 6-Z25 articulated by the LH of the piano) have a strong diatonic character (due to their membership of G12 and the 7-35+ genus) which this

11. It is useful to note that 6-Z19/44 and 4-19/17 are reasonably similar to each other (the Difquo between the two is 0.092), 6-Z19/44 has some degree of similarity with 7-35/34/32 (the Difquo is 0.233) whereas 4-19/17 and 7-35/34/32 are significantly different (the Difquo is 0.592).

12. The hexadal total content sets 6-Z43 and 6-16 stand outside the genus of 6-Z19/44, perhaps understandably, given that they are hexads. Nevertheless, they are similar: 6-16 is in R2Rp with 6-Z19 and its complement, and 6-Z43 is in Rp with 6-Z19 and its complement.

13. Note that although 6-Z19's instance has been noted on the graph (vocal line, bars 19-20), it has not been included in the genera reckoning because it was felt that this particular segment was well covered by other segments, which had been articulated more clearly by phraseological and registral considerations. Its inclusion would therefore skew the results somewhat in favour of the set.

particular segmentation fails to convey, and it could be argued that these sets anticipate the change in generic profile which is effected by the third section.

The generic profile of the final section contrasts that of the first two sections, with three of the four genera systems placing their respective chromatic genera in first place. The emergence of the diatonic genera is evident in the PGS and the Fortean genera system, although the latter also assigns considerable importance to G8, the atonal genus, especially in respect of the second part of the section.

In examining the detail (see the matrix in Example 9.14), it is clear that the section begins in a manner similar to Section 1, with the 6-Z19/44 genus dominating the PGS, and the high Squo of G4 dominating the Fortean genera system. The complement-related octatonic sets, 6-Z42 and 6-Z13 in the first 4 bars (the vocal line in bars 25-26 followed by the bass line in bars 27-28), interact with the trichordal genera to assure the octatonic genus a significant status in the PGS. It is interesting to note that, in terms of the Fortean genera system, these two sets are aligned with that of the harmonic minor scale (total content of bar 26) by G9 (an atonal-tonal genus).

It is therefore not until the second part of the final section that the chromatic genera begin to dominate, with a solid core of chromatic segments in the vocal line and in the LH of the piano part (with the exception of bars 34-35). Both Forte and the PGS model this chromatic material in a diatonic context (given the second place accorded G12 and 7-35+ respectively), the former citing the unambiguous diatonic constitution of the semiquaver figures in the piano part (6-Z25, 7-32, 7-34) while the latter cites the tetradal figures such as 4-11 and 4-22, which frame the interpretation of the subsequent figures, which form more ambiguous tetrads 4-Z15, 4-Z29 and 4-26. The tension between chromatic and diatonic components within this subsection is perhaps represented by the Parks IV genera system, which depicts the IC2 genus slightly ahead of the IC1 genus.

The detail of the generic profile of the postlude illustrates the first hint of conflict between systems in this work. The Fortean system's G8 (the atonal genus called so on the basis of the its progenitors, 3-3 and 3-4) has a very high Squo, with hits on 10 out of 12 sets, underlining the importance of this genus to the segment. This is, in fact, supported by the PGS, in that the 6-Z19/44 and the 4-19/17 genera are in second and third place. The importance the system assigns to the chromatic genus can be attributed to the central role of the chromatic hexad, 6-1, as well as the 4-4/8-4 complementary partnership formed in the last bars (discussed earlier), and this represents a confirmation of the overall view of the entire third section (see Example 9.16). Forte's atonal genus nevertheless assigns these sets to G8, and its performance, in terms of Squo and number of hits, underlines the appropriateness of this genus for this segmentation.

ii) Pc-set genera summary

From the summary shown in Fig. 9.5 below it is clear that *Alles* is dominated by a degree of consistency in terms of its genera and the focus, for the first time in the works studied here, is upon atonal-type genera. In Sections 1 and 2 the 6-Z19/44 genus predominates, and although there are local passages where its diatonic source (i.e. the 7-35/34/32 genus) is borne out by the generic profiles, its independence is captured by the wider context of the sections. The chromatic character of the third section confronts this singularity of generic profile with the unambiguous strength shown by chromatic-type genera, yet prominent amongst the supporting genera is the 6-Z19/44 genus alongside, interestingly, the genus which dominates the postlude, the Fortean G8 genus, which has also been characterised as atonal.

Section	Key Genera	Alternative	Supporting Genera
Section 1	6-Z19/44 (signature)	4-19/17 (atonal)	Chromatic
Section 2	6-Z19/44 (signature)		7-35/34/32 (extended diatonic)
Section 3	Chromatic	G5 (chroma)	6-Z19/44 (signature) G8 (atonal)
Postlude	G8 (atonal)	Chromatic	

Fig. 9.5: *Alles*, summary of pc-set genera by section

The generic profile of *Alles*, therefore, is unique amongst the works of Opp. 6 and 8 in that it portrays a harmonic species which looks forward towards Schoenberg's atonal works, rather than back towards the scalar constructs that would have seen the predominance of the extended diatonic genus (or indeed other diatonic genera such as G12, or 7-35+), as has been noted in the Petrarch *Lieder*, and in *Sehnsucht*.

D) Conclusions

i) The three perspectives

The three perspectives, examined separately, might be regarded as offering a degree of conflict. After all, the harmonic analysis suggests a degree of conservatism in that, underlying the chromatic suspensions, we can identify a harmonic skeleton, revealing a relatively straightforward sequence of harmonies governed by an extended tonality in which the minor subdominant prevails. This conservatism appears to contradict the contention of the analysis by pc-set genera, in which it is claimed that the harmonic species look forward to atonality.

The two are mediated by the motivic analysis which argues that the two-note pairs, represented in the harmonic analysis as suspensions, form the mainstay of the motivic content of the work through the process of developing variation. The model is expanded by the consideration of the wider context of these notes, in terms of the textures of which they form part. Thus, the semiquaver textures, as investigated in the motivic analysis, are regarded as an additional factor which contributes to the motivic substance of the work.

Therefore, taking the view of the motivic analysis in considering the suspensions as entities in themselves one step further, the pc-set analysis (together with the context offered by the examination of the pc-set genera) identifies *Alles* with works which are more explicitly atonal. To put this another way, by removing the notion of suspension, with its baggage of main/subordinate notes, and considering all notes as equal, the post-tonal analysis identifies the underlying pc content of *Alles* that resembles the atonal works of some years later. It not so much the existence of such pc-sets that is important (after all, they have been identified in all of the works studied here), but rather the fact that the genera analysis shows that such genera *predominate* throughout *Alles* (both in the sense offered by the reduced matrix itself, and in the sense that such dominance by the atonal genera extends throughout the work), and have become independent of the diatonic-type species which characterise the scales which underpin tonality and tonal works.

For these reasons *Alles* can be regarded as a truly experimental work. One might conjecture that, given its lack of popularity (perhaps for the reasons outlined in the introduction to this analysis), this was not a particularly successful experiment. As will be shown below, the subsequent works, rather than taking the harmonic species of *Alles* forward, tend to move backwards somewhat. Nevertheless, the three perspectives vividly portray *Alles* as a work in which its coherent harmonic process anticipates the harmonic species of atonality, and on these grounds it can be regarded as forward-looking.

ii) Interpretation of the text

The various interpretations of the perspectives offer useful metaphors in the interpretation of the text of this *Lied*. The motivic manipulations and the processes of developing variation themselves offer a metaphor for the way in which life teaches through experience – the child learns through experience, which constantly changes one's perspective. For example, the moment recalled when the child presses the anemone to his/her heart has new meaning at this moment of recall. Indeed, the moment which the poem encapsulates, crystallises the experience of the narrator/father, in a manner which produces an understanding, which has not existed previously. The idea has an analogy in developing variation, which is particularly cogent in this work, whereby one idea is transformed into another through the various influences of the other motivic (and harmonic) components.

The integrated tonality which although imbued with extension, is diatonic at its core, given its numerous V-I-type progressions, might be deemed to represent the child him/herself, in that he/she is constantly readjusting to learn anew - to find new forms of expression through the known rules.

The newness of the harmonic species (which was summarised as predominantly atonal) therefore represents the notion of *Alles* itself - a new perspective which, although not completely explainable in itself, encapsulates the environment in which motif and harmony, bound together by developing variation to generate coherence, can interact with a degree of freedom hitherto unavailable. The harmonic species which represent the sound-world of *Alles*, appear to match the poem's quiet optimism that life will teach what one needs to know. Perhaps the latter is a representation of the creed of the modernism which Schoenberg sought to portray in his music during the years 1903-5, in the sense that tonality's extension, constrained by the coherence brought about by developing variation and motivic process, would ultimately be governed by a more abstract model, part of which (i.e. the harmonic species) is captured by the singularity of genera depicted by the pc-set analysis.

Analysis 10: Op. 6 No. 6, *Am Wegrand*

It appears that October 1905, like the short period from December 1903 until January 1904 which produced the first four songs in this study, was another month in which Schoenberg spent considerable time writing songs. Dated 18 October, *Am Wegrand* is the second of four songs completed during a fortnight of intense writing. It may be that the completion of *Der Wanderer* (dated 15 October, 1905), which had been started back in April, inspired this period in which *Lockung* (26 October) and *Mädchenlied* (28 October) were soon to follow.

Schoenberg's setting divides the text into two sections, which cuts across Mackay's rhyme pattern that suggests a three-stanza structure (see Fig. 10.1, below). In the initial section, the vocal line, imbued with a distinctive rhythmic character, is set against an incessantly repeated piano figure which is established in the short introduction, while in the second part the piano interacts with the themes of the vocal line, yet maintains something of the rhythmic energy of its figures from the first section. The theme of the poem is one of alienation – the individual lost in the crowd – and is set amid the drama of a vain search for a loved one who never appears, while the turbulent piano part evokes the image of the disturbed and even fatalistic state of mind of the narrator.

A) *Form and motif*

The thematic content of *Am Wegrand* is more similar to the Petrarch songs than *Alles*, in that motifs tend to form themes which recur in variation rather than undergo the process of developing variation as in *Alles*. Nevertheless, developing variation plays a significant role in connecting motif-forms.

i) Form and phrase structure

The overall form could be classified as binary, with two freely related sections separated by a piano interlude. Like the other songs of Op. 6, the solo piano texture provides a short introduction and a somewhat more extended postlude. The two sections relate to each other by means of the repetition of short *Gestalten* or motifs, although the sequence of phrases differs. The table in Fig. 10.1 attempts to classify motifs and provide a 'map' of their contexts, in terms of the poem's phrases.

Introduction		Phrase	Text	Rhyme	Motif
Section 1A	Couplet	Phrase 1	1. Tausend Menschen ziehen vorüber,	a	αβ
		Phrase 2	2. Den ich ersehne, er ist nicht dabei!	b	δδδ
		Phrase 1 (3)	3. Ruhlos fliegen die Blicke hinüber,	a	δδδ
Section 1B		Phrase 1	4. Fragen den Eilenden, ob er es sei ...	b	αβ
		Phrase 2	5. Aber sie fragen und fragen vergebens.	c	αβ
		Phrase 1	6. Keiner gibt Antwort: "Hier bin ich. Sei still."	d	β?
Section 2		Phrase 1	7. Sehnsucht erfült die Bezirke des Lebens,	c	αβ | σ
		Phrase 2	8. Welche Erfüllung nicht füllen will,	d	σ
		Phrase 1	9. Und so steh ich am Wegrand-Strande,	e	αβ
		Phrase 2	10. Während die Menge vorüberfliesst,	f	
		Phrase 1	11. Bis, erblindet vom Sonnenbrande	e	? δδδ
		Phrase 2	12. Mein ermüdetes Aug' sich schliesst.	f	WT

Fig. 10.1: *Am Wegrand*, verse and motivic structure

ii) Phrase structure.

Schoenberg's setting is slightly irregular in its alignment between *Gestalt* and the lines of McKay's text, in that the setting of Line 3 recalls the *Gestalt* of the previous line (continuing a sequence of δ motifs), thus cutting across both McKay's rhyme schema and the couplet structure of the text. Moreover, a similar dissonance between Schoenberg's setting and the couplet structure/rhyme setting occurs between Lines 4 and 5, with both lines being set to a similar *Gestalt* (which corresponds to that of Line 1). Thus, while the first part of Section 1 might be regarded as comprising an antecedent followed by two consequents, the second part consists of two antecedents followed by one consequent, as suggested by the symbols: *a b (b)* | *a a b*, where '*a*' stands for antecedent, and '*b*' stands for consequent.[1]

The phrase structure of Section 2, on the other hand, is more regular, as indeed is the semantic structure of the text. In particular, the self-sufficient semantic content of the initial couplet (lines 7 and 8) is separated by the duple/triple rhythmic gesture of bar 26. This gesture, albeit in the context of a different motivic content,[2] was used at the corresponding point in Section 1 (after lines 1 and 2) in bar 7.

1. The notion of antecedent/consequent here is used loosely, whereby a rising phrase is answered by a falling phrase, while both are of the same length.

2. In the earlier section, it was the melodic α motif in the RH piano which articulated a duple rhythm.

iii) The motivic structure

Example 10.1 in Vol. 2 shows the motivic classifications referred to in the discussion of *Am Wegrand* which follows, while Example 10.3 identifies their instances in the setting. In general, the way in which the motifs appear in the work suggests two motif types: the thematic motifs in which the classifications are categoric (in this work α, β and σ); and the motifs which are transformed in the manner of developing variation (motifs δ and θ). A number of motivic features also persist throughout the entire texture, as indicated by Roman letters in Example 10.1. These connect motif-forms identified in Example 10.1, but also at times gain sufficient independence to emphasise the overall sense of developing variation that pervades the whole.

The thematic motifs

The phrase which sets the first line of text (bars 3-4) has been divided into two motifs, α and β, in order to distinguish instances such as in the first phrase (where the two appear consecutively) from phrases in which one of the motifs appears independently (such as at bar 14). The initial α–β is anticipated by the content of the RH of the piano part in the introduction, while in bars 3-4 it is also possible to discern its notes within the RH of the piano part in free canon with that of the vocal line (see Example 10.2). These have been identified with asterisks in the example. The α motif, in conjunction with β, recurs throughout *Am Wegrand* within different harmonic contexts. For example, bar 3, where it articulates D minor by beginning on its root, moving towards D minor's submediant (B♭) and leading-note (C♯) within its shape, can be compared with the sequential iterations in bars 10-11 and 12-13, where the motif begins on the third of the chord (D♭ and D minor respectively). The two distinct realisations point to the degree of independence motivic identity retains from harmonic context.

Within the α–β motif, it is possible to derive the D-B♭-A element which underpins the initial instance of the θ motif in the LH of the piano at bar 3, as shown in Example 10.1. Although a case could be made for explaining this association as being determined by the triad-based harmonic framework, rather than representing a motivic connection *per se*, it should be noted that the dissonant B♭ neighbour note in the LH piano is peripheral to the triadic structure at this point, as is the B♭ in the vocal part at the end of bar 3. These kinds of connection recall the analyses by Schoenberg himself as well as his own criticism of the procedure,[3] discussed earlier.

3. See for example, his analysis of Mozart's Dissonance Quartet (see Schoenberg, 1994: 41-43), the Chamber Symphony (see Schoenberg 1995: 138-141, 190-191, 262-265), and in respect of the

Finally, the D-B♭ dyad raises the possibility of interpreting the harmony at this point in terms of B♭, whereby the melody would begin on the mediant. This potential, as noted above, is fully realised in bars 10 and 12.

The other motifs

The recurrent θ motif is characterised by its rhythmic content and its shape (which might be described as a rising leap followed by falling steps), rather than a succession of intervals. In fact, its successive interval pattern tends to differ on each new occurrence, and it is not until bars 8-9 that successive forms can be related directly by a transposition operator (as illustrated in Example 10.3). Its initial instance comprises the notes which are a semitone distant from D: E♭ (the flattened supertonic) and C♯ (the leading-note), which might be regarded as a progenitor of the σ motif, the new (and characteristic) motif in Section 2.[4] The fact that Motif σ is also associated with the α motif in conjunction with Motif β, enhances this view. Indeed, as the harmonic analysis shows, two of these notes are the tonics of the two regions which dominate the song, while the third, E♭, is reiterated in bars 15-17, and prominent in the passage in bars 31-2.

The three-note chromatic segment (as an unordered set of notes) also forms the basis of Motif δ, initially heard in bars 5-6. Characterised by the 'y' rhythm, this motif is usually repeated sequentially, frequently governed by T10, but also by T1 where the repetitions dovetail, generating a contrasting duple rhythmic effect (see bars 6-7 in Example 10.3). Although its inner content is chromatic, its transposition levels are generally whole-tone steps, and the rhythmic character of the motif, as it is repeatedly varied, suggests an association with the whole-tone steps which dominate the interlude (and are reiterated in the postlude). This process is demonstrated below in Fig. 10.2.

Bar 16 also emerges from the θ-derived motif of the previous bar, and the successive T10s may also be regarded as truncated forms of θ (in which the first two notes have been omitted), as suggested in Example 10.3 . The connection is clarified at the conclusion to the second section (bars 31-35), where the reiterations of δ are followed by the whole-tone passage with which the vocal part concludes.

Brahms *Lied: O Tod o Tod ...* (Schoenberg, 1975: 429-440). For the discussion of his critique, see Chapter 2: 28.

4. This is also observed by Frisch (Frisch 1993: 216-218).

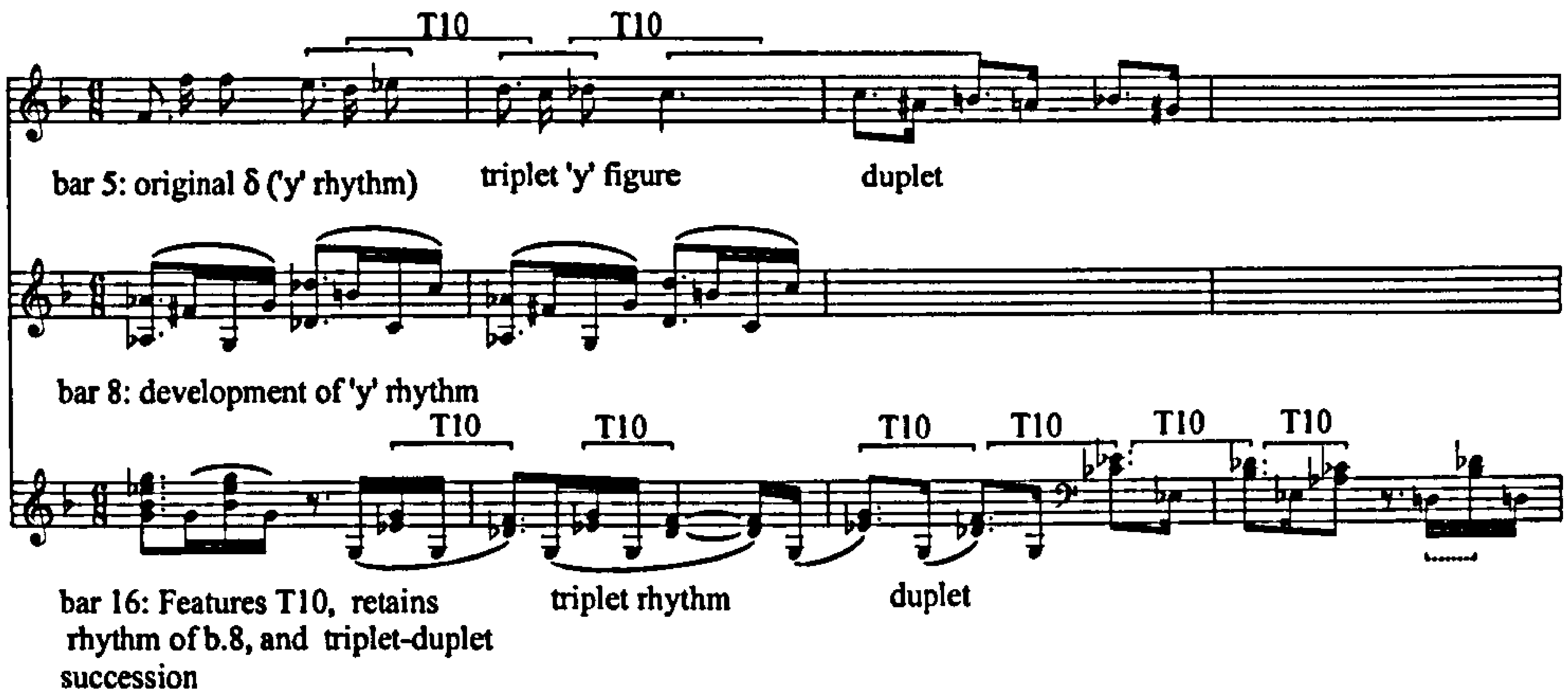

Fig. 10.2: *Am Wegrand*, derivatives of δ

This discussion suggests, therefore, that the *Grundgestalt* is formed by the θ motif which is first articulated in the two bars of the piano introduction: all motivic material can be generated from this passage, while, as the next section will testify, it also provides the notes representing the main regions which appear in the work.

B) The harmonic perspective

A harmonic interpretation based upon chordal categories appears under the score in Example 10.3 in Vol. 2. The graph shows a predominating D minor tonality which is occasionally juxtaposed with other centres, such as D♭, E♭ and G minor, frequently articulated by means of assertion rather than through coherent chordal syntaxes. Chromatic voice-leading plays a leading role in the transitions, although, as in the other songs of this period, it tends to mediate between regional emphases, rather than articulate a tonal structure.

Perhaps the most challenging and revealing passage is shown in Fig. 10.3, below. The lack of consistency in terms of the transposition levels of the motivic material between the staves in the piano part (that is, T5 governs the RH piano part and T3 governs the LH piano part in bar 8, while a similar disparity governs bar 9) indicates an independence of motif from harmony. That is, neither of the motivic fragments determine any particular harmony, nor do their combination. The Roman numerals below the stave reflect the difficulties involved in providing a sufficient classification of the harmony. In terms of D minor the scale degree ♭VII, which has been observed elsewhere, emerges and although the chart of the regions identifies its regional derivation as ♭MD minor, it also perhaps reflects the influence of the minor subdominant (in that it is the subdominant of the minor subdominant).

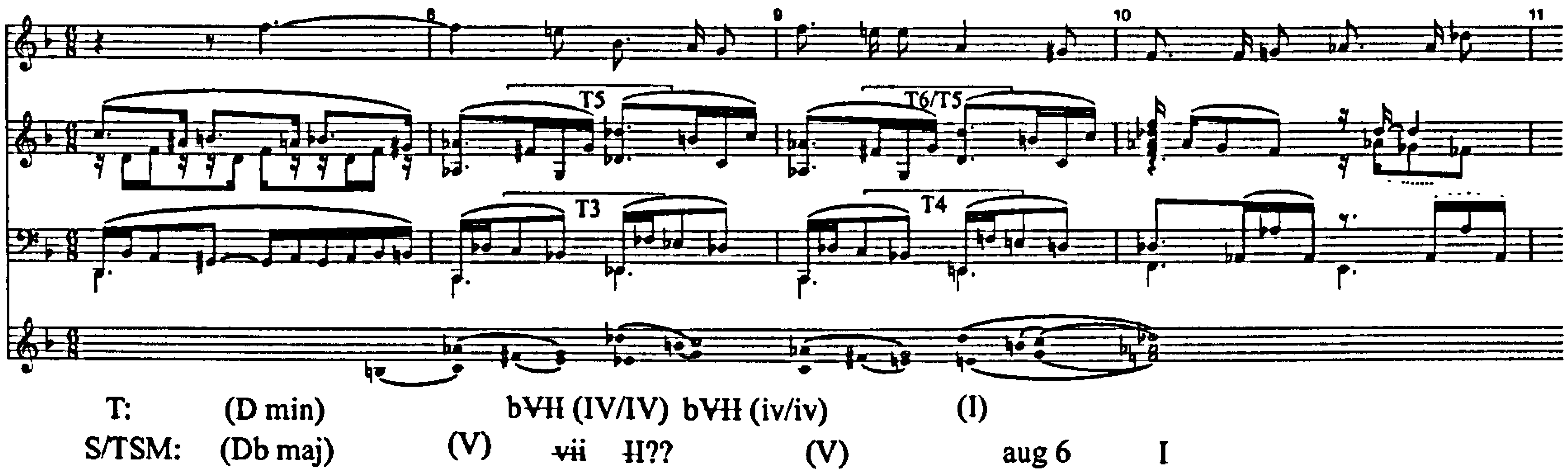

Fig. 10.3: *Am Wegrand*, bars 7-10, voice-leading

Bar 8 does not seem any more comprehensible from the viewpoint of D♭ major, yet the harmony derives continuity from the chromatic voice-leading (as illustrated on the fourth stave) and the transition to D♭ major is effected by means of an augmented-sixth progression at the end of bar 9.[5] Retrospectively, the assertions of A♭ at the beginning of each bar may be regarded therefore as dominants of the new tonal centre, although this of course does not invalidate their interpretation as leading to the C chords, given the strength of the C in the bass as the first new bass note after the constant reassertion of D in bars 1-7.

As is typical of the harmony in these works, D♭ major is prepared as early as bar 2, where a D♭ chord can be gleaned from the harmony at the end of the bar. C♯ alongside F is a recurrent feature of the opening bars and, alongside E♭ and D♭ itself in the melodic line, provides an indication of the tonal direction. In spite of the chromatic notes generated by the persistent θ motif, D minor is the dominant harmonic feature, on the basis of its constant reiteration as the bass line (reinforced by the triadic ostinato as in bar 7 and its influence on the shape of the α–β motif).

The other significant tonic chord which is asserted in the first section is E♭ major, in bars 15-17 at the conclusion of the vocal part. The approach chord is as difficult to classify as was the transition to D♭, with chromatic voice-leading providing the means for a swift transition. The E♭ tonality has also, however, been prepared by the E♭ which appeared in the opening vocal line, while the C minor chords of bars 8-9 discussed above also contribute to the preparation of this tonality. However, in the interlude, it is not established by any assertion of its primary

5. Specifically, the D and C move to D♭, while the E rises to F and the G rises to A♭.

chords, nor by the other pitch-classes of its scale, and, after the E♭/D♭ alternation, it quickly disappears amid the ensuing whole-tone passage.

The second section is marked by brief assertions of various tonal centres, which, by contrast, involve more conventional syntaxes than in the earlier section. The D minor with which the section opens is confirmed by its dominant in bar 24, while the movement towards the subdominant minor (G minor, which is established in bar 27) includes a dominant-seventh with raised third and flattened fifth (a 'whole-tone' dominant-seventh chord). G minor's minor mediant, B♭ minor, takes part in an oscillation with its own natural mediant D♭ major (bar 29), before preparing the E♭ minor which dominates the passage involving chromatic thirds in bars 31-32. E♭ yet again dominates through reiteration in the form of a prominent bass note and the syncopated pedal, reasserting the third of the chord. The short assertion of E♭ gives way to the whole-tone pattern with which the vocal line concludes, before the postlude reasserts D minor.

The final cadence (bars 44-5) involves a diminished triad with a subdominant root, which continually fails to synchronise with the bass figure (wherein B♭ alternates with the dominant A). The overall effect is one of harmonic cadence complemented with what may be described as the liquidation of the θ motif.

To summarise, the regional structure involves the extension of the tonic region towards that of the S/TSM, although there is little to support the involvement of the supertonic in any meaningful way. The region is articulated in Section 1 through A♭, its dominant, although the connection between D minor and A♭ is chromatic as exemplified in the extract from bars 7-10. The movement in Section 2 towards the minor subdominant (G minor) brings about the suggestion of the Neapolitan (which is also alluded to in Section 1), although it is not fully substantiated by its dominant. D minor is thus surrounded by regions based on the notes a semitone distant (as was found, for example, in *Traumleben* and *Verlassen*), but, more significantly, these regions are represented by the notes of the θ motif from the first beat of bar 1.

C) *The post-tonal perspective*

Two important factors have emerged from the motivic and harmonic analyses. The first is the predominance and isolation of the vocal line in sustaining the thematic and motivic content for the work, suggesting that it represents the focal point for the linear dimension of the segmentation. Indeed, the texture of *Am Wegrand* is less contrapuntal than that of some of the other *Lieder* examined in this study because, with the exception of bars 22-32 where the piano part provides a counterpoint melody to the vocal line, it tends to form an ostinato background to a melodic vocal part. Nevertheless, *Am Wegrand* was shown to be a little more thematic in terms of the way in which motifs are varied, develop and recur than *Alles*, *Sehnsucht* and *Ghasel*, which is a less promising indicator of the likelihood of pc-set relations modelling coherence.

Secondly, the lack of clarity in respect of the harmonic functional analysis suggests that the chordal segments be investigated to determine if set relations can identify an underlying set of relationships. A significant proportion of the segmentation will therefore be concerned with the harmonic 'blocks' (called, as elsewhere, the 'total content segments') formed by the on-going ostinato patterns themselves, and the analytical focus will examine how these elements interact with the linear content.

i) Pc-set analysis - segmentation and recurrent sets.

It is interesting to find that the set of the first phrase of the vocal line (the α–β motif) is pc-set 6-Z19 which, as noted in the last two analyses, formed a significant segment in both *Sehnsucht* and *Alles* (see Example 10.4 for a comparison of some of the key instances in each). In addition, as in *Alles*, the motivic context of the hexad is marked by sets of semitonal pairs, and Fig. 10.4 notes a number of recurring nested pc-sets which correspond between instances.[6]

In *Am Wegrand*, however, the only other segments which produce 6-Z19 are those which identify motivically with the first phrase (such as in bars 10-11 and 27-28): that is, the instance of this set in this *Lied* is thematically specific. Moreover, the other phrases in which variants of motif α can be found are not necessarily closely related to α in pc-set terms. For example, although the set formed by the vocal phrase in bars 12-13 (set 6-16) is R2Rp related to 6-Z19, the set formed by the piano LH in bars 22-23 (6-Z38) is not.

Another set which appears here, yet had significance in *Alles*, is set 6-27. Here, the set occurs as a total content set in bar 2 immediately before the entry of the voice, but is reiterated (at the same pitch-class transposition level as its predecessor) at the conclusion of the interlude spanning bars 19-21, also immediately before the entry to the vocal part. It recurs within a similar motivic figure towards the end of the postlude, just before the final fragmented entry of α.

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6. It should be noted that, with the exception of the chordal instance in bars 8-9 of *Sehnsucht*, all of these instances of 6-Z19 are inversionally equivalent. That is, their normal forms can be mapped into one another by using transposition only (as opposed to transposition followed by inversion).

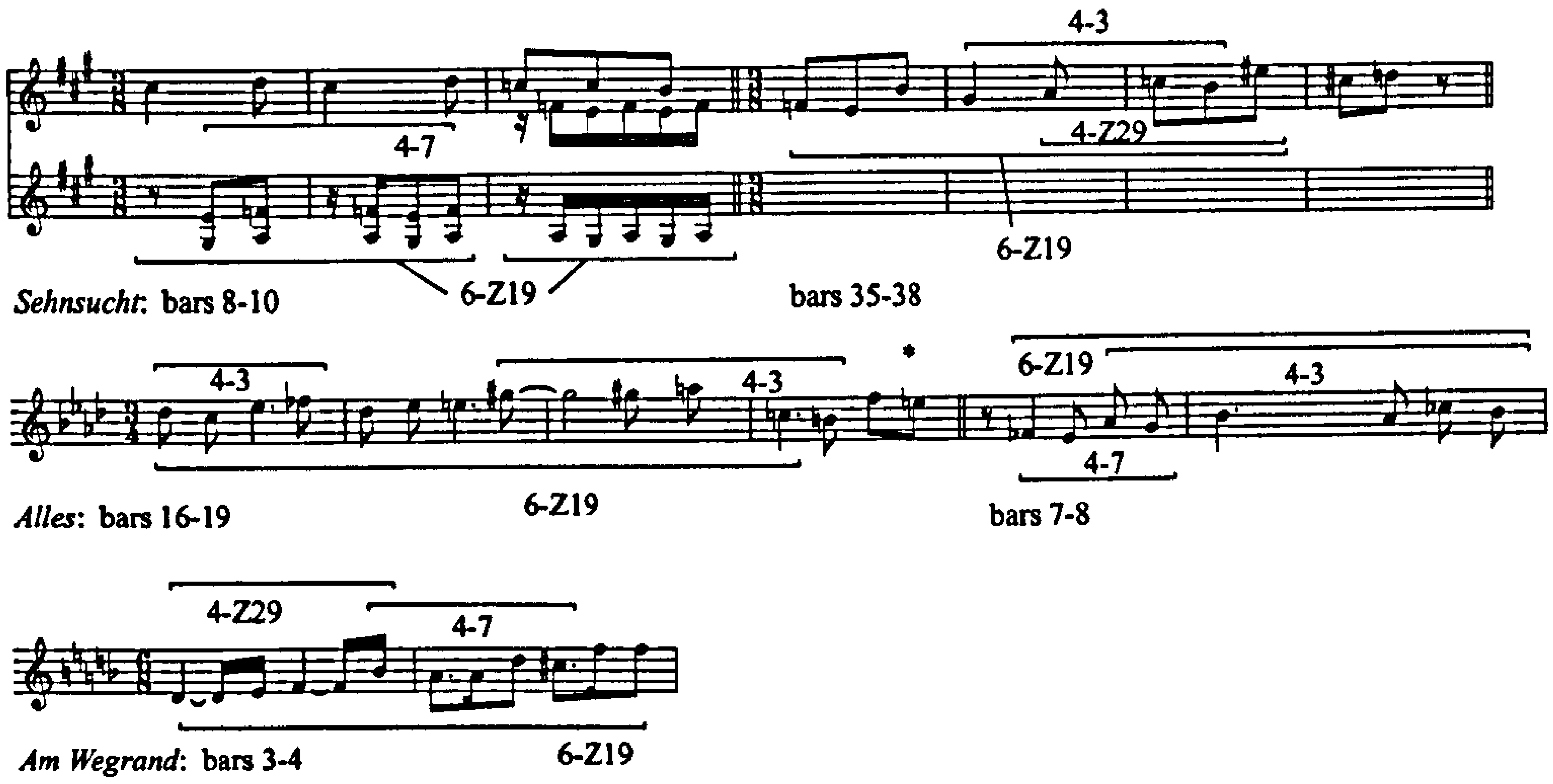

Fig. 10.4: Instances of 6-Z19 in the other *Lieder* of 1905

Nevertheless, the instances of recurring sets within *Am Wegrand* are fairly few, and the pc-set relationships which were identified, and were argued as factors which enhanced a sense of coherence in earlier songs, are lacking here.

ii) Pc-set genera

The segments which constitute the vocal line can be isolated, and an indication of the harmonic species can be gleaned from an examination of the resulting genera in the context of their genera systems (see the appropriate row in Example 10.5). The PGS contains the genus based upon 6-Z19/Z44, and it can be seen that the chromatic genus out-scores this genus by a significant margin.[7] One can conclude therefore that 6-Z19 (and the sets with which it has embedding relations) is not projected through the texture of the vocal line.

It can be seen from Examples 10.5 and 10.6 that the chromatic genera indeed play a very significant role in this work. All genera systems are in agreement that Section 1 is dominated by chromatic segments, although it is clear from the Squo that the Fortean G5 is the genus which most aptly captures this segmentation. A more detailed examination of the detail of the two phrases in the section conveys a rather different picture, however (see Example 10.7). The PGS depicts the first phrase as slightly favouring a diatonic-type genus, a view supported by the Parks

7. The 6-Z19/44 genus is in sixth place in this listing with only five hits (and a correspondingly low Squo). It is interesting to note, however, that the POF of this segmentation in the context of the PGS confirms that the chromatic genus is in first place by some margin, yet the status of the remaining genera is not supported. In second place is the 'whole-tone' tetrachordal genus (4-21+) while 6-Z19/44 is in third.

IV system, on the basis of the central harmonic axis within bars 3-4, where the diatonic sets 5-29, 6-Z25 and 5-27 are brought into conflict with those which relate to the 4-19/17 genus, such as 4-19 and 6-Z19 from the melody, and the final harmonic component of the opening antecedent phrase (4-19). The consequent phrase is by contrast encapsulated by the chromatic genus, while the harmonic support oscillates between diatonic (5-11), chromatic (7-3) and non-tonal generic types.[8]

The detail of the second phrase (bars 7-9) also promotes an unexpected genus, in that the pc-sets which represent the central harmonic units, 7-10, 8-12, 8-Z15 and 7-32 all belong to the diminished-seventh genus, genus 4-28+ (see Example 10.8). These sets are contrasted with the more overtly chromatic content of the vocal phrase.

The generic profile of Section 2, including the interlude, is much more straightforward, with the 7-35/34/32 genus predominating over the entire section, taking in 20 hits of the 22 sets in the segmentation (see Example 10.9).[9] Although the octatonic genus is in second place (vindicated to some degree by the second place accorded 8-28 in the K*/Kd genera system), it is eliminated by the reduction process. The profile offered by the PGS is supported by the prominence accorded the genera based on the K* complexes of heptadal sets 7-32 and 7-34 by the K*/Kd genera system, and by the fact that the Fortean system cites G12 and G11 in first and second place. Both of these genera however, differ considerably from the 7-35/34/32 genus (with respective Difquos of 0.452 and 0.565). This genus encapsulates the brief whole-tone passage in bars 17-18 (indicated by set 5-33) in the wider context of a melodic minor scalar figure, the diatonic 4-22 which is twice framed within 5-34, as well as sets which it shares with less diatonic genera, such as 4-Z29, 6-Z19, 6-Z23 and 8-Z15.

Section 3 is characterised by a return to the dominance of chromatic-type genera, an issue which is supported across three of the four genera systems. The preference given to the whole-tone hexad by the K*/Kd genera system is perhaps explained as a characteristic of the Squo scoring system, whereby systems that comprise genera with vastly differing cardinalities at times tend to

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8. The Fortean model essentially depicts the same interpretation, except that the central harmonic sets of bars 3 and 4 are covered by what Forte calls an 'atonal-tonal' genus (G10).

9. The relationship between genus and segmentation is underlined by an examination of the POF for this genera system in the context of the matrix underpinned by this segmentation. The 7-35/34/32 genus scores 80% in the graph, while the second-placed 6-Z19/44 genus achieves only 40% in terms of its percentage of fulfilment, underlining the significance of the former genus.

favour the smallest groups when a comparatively small number of their members are hit.[10] The sets it identifies in the passage are, predictably, the first part of bar 24 and all of bar 26. In terms of the PGS, these sets are covered by the 7-35/34/32 genus which occupies second place in the Squo scoring, and proposes a strong contrast to the pc-sets covered by the chromatic genus, encapsulating in particular the harmonic segments between bars 24 and 26 (see Example 10.10). The preceding harmonic segments are of more mixed generic heritage, with the primary chromatic content emerging from the linear phrases of the vocal line alongside those of the LH of the piano part.

The generic profile of Section 4 is in general chromatic although, as in Section 1, the generic modelling of the segmentation of the complete section does not identify the detail which can be gleaned by examining the two phrases separately (see Example 10.11-10.12). Thus, it is clear that the overwhelming chromatic content of the first phrase (with the set of the vocal line hitting on the 6-Z19/44 genus) is confronted with the whole-tone character of the second, a model unanimously depicted by all genera systems.[11]

In the postlude, the genera systems differ slightly in terms of the way they model the passage, with perhaps the Fortean system offering the most all-encompassing depiction. Its G2 predominates, hitting on 12 of the 14 sets in the segmentation - the exceptions being the chromatic segment which underpins the σ motif, and the central 'total content' segment which yields set 8-17 in bars 39-40. An alternative view is offered by the slightly higher scoring PGS, whereby the majority of sets (9 out of 14) are encapsulated by the 7-35/34/32 genus (eight of the nine being included within G2 – see Example 10.13). The exceptions are the chromatic phrase (forming 4-1) which begins the postlude, and was also characterised as such by the Fortean system, the LH piano part at the same point (6-Z38), and the total content formed by both parts (7-6). The other exceptional element identified by the PGS is the hint of octatonicism suggested

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10. This issue has been discussed in Chapter 5, and is frequently referred to in respect of G4 in the Fortean genera system. Here, the genus around 6-35 has only 15 members, whereas the genus based on 3-2 has some 158 members.

11. Once again in the Fortean genera system, the whole-tone character of the passage is obscured by the limitations of the Squo calculation in respect of genera with vastly differing sizes, whereby the augmented genus has scored 0.1347 on the basis of four hits out of a possible nine, whereas the intuitively more appropriate (but much larger) G2 whole-tone genus has seven out of nine hits yet can only manage 0.676 and is therefore in fourth place. Even if G2 had hit on all nine, it would only score 0.870, some way short of the 0.1347 it would require to 'overtake' G4. See Kennett 1998b. Note that the figures included here differ from those of Kennett as he uses Forte's original system (based on cardinalities of the 'half-genera') for calculating Squos.

by bar 43 (through the octatonic heptad 7-31).[12] It would appear, therefore, that in this case the PGS offers a more detailed and comprehensive modelling of the passage (incorporating the octatonic and chromatic) that confirms the analyst's intuition regarding its harmonic species.

iii) Summary.

Fig. 10.5 summarises the generic structure of *Am Wegrand.* The generic analysis confirms a singularity of harmonic species, as the generic profile is predominantly chromatic, and indeed more chromatic than diatonic or atonal. This underlines the fact that the chromatic harmonic species gain a level of independence which has not been matched elsewhere in the generic studies of these *Lieder.*

Section	Key genera	Alternative	Supporting Genera
Section 1	G5 (chroma)		7-35+ (diatonic) 4-28+ (diminished-seventh)
Section 2	7-35/34/32 (extended diatonic)		Octatonic
Section 3	G5 (chroma)	Chromatic	7-35/34/32 (extended diatonic)
Section 4	G5 (chroma)	Chromatic	6-Z19/44 (signature) 4-21+ (whole-tone tetrad) G4 (augmented)
Postlude	G2 (whole-tone)		7-35/34/32 (extended diatonic)

Fig. 10.5: *Am Wegrand*, summary of the main genera

The strong performance of the 7-35/34/32 genus (particularly in Sections 2 and 3) offers support for the idea that the chromatic genus emerges from a diatonic tradition. It underlines that the harmonic species still retains a number of pc-sets derived from the scalar constructs which are well known.

D) Conclusions

In *Am Wegrand* as in *Alles*, although it is possible to distinguish motivic treatment which is based on variation from developing variation, a set of identifiable motivic features underpins a comprehensive set of developing variations. In terms of triadic harmony, the tonic is asserted, and is supported by an extension of tonality brought about by the regions based on notes which are chromatically adjacent to the tonic, the presence of which is manifest at the opening through

12. Admittedly, the PGS has not been able to classify this set as octatonic or diminished in terms of its ultimate genus designation. This is because both generate equal Squos and cannot be separated in reduction by any of the criteria discussed in Chapters 4 and 5. In this case, inspection can confirm that the 7-31 segment is more characteristic and definitive of the octatonic genus than the diminished-seventh genus.

motivic assertions. While the Neapolitan can be regarded as being sourced from the extension provided by the minor subdominant (through its submediant, E♭), the emphasis on the region of the supertonic's submediant is less easily characterised by such means. D minor's dominant is seldom present. Nevertheless, the genera of the pc-sets confirm that the major and minor scales take on a secondary role to the harmonic species of the chromatic scale, which asserts a strong sense of independence.

This transitional-period harmony therefore provides a fitting metaphor for the theme of alienation and panic suggested by McKay's poem. Driven by the saturation of the texture with motivic forms, the expanded tonality presents a triadic tonic through assertion, rather than by means of prolongation. The chromatic and whole-tone based textures form a polarity that is also confusing, if not confrontational. The former perhaps represents the chaos of the world 'rushing by', unresponsive to the poem's narrator, while it is the latter which is associated with the setting of the final lines of the text of the poem, in which the narrator sinks back, resigned to his/her fate in utter despair.

Analysis 11: Op. 6 No. 7, Lockung

Lockung represents one of the most accessible and intuitively appealing of Schoenberg's early songs. The mood of heady excitement and growing euphoria on the part of the seducer is imaginatively captured by a carefully crafted piano texture and the use of short, segmented vocal phrases. One of the key contributing factors is the quick triple 3/8 time signature which is occasionally interrupted by what is effectively an even more breathless, very quick 2/8, such as at bars 5-7 and its corresponding passage in bars 42-44, but also in bars 26-28. This heightens tension at the key points of the sectional articulations and enhances the music's depiction of the art of the seducer suggested by the poem.

Lockung is one of the songs analysed by Schoenberg himself in the context of his theoretical treatises,[1] and a number of analytical discussions have taken this work into their account.[2] This aspect serves the composer's perspective of the current study particularly well, in that it is possible to authenticate its argument that regional structure in the context of monotonality underpins a homogeneous view of harmony in Schoenberg's late tonal style.

A) *Form and motif*

i) Form and phrase structure

A three-part sectional structure is suggested by Schoenberg himself,[3] and it forms the basis of the outline for the sectional structure in the plan shown in Example 11.1 in Vol. 2. The plan attempts to segment the work in accordance with a set of thematic motifs or figures, which in general articulate the line and couplet structure of the verse, underpinning the phrase structure of the music. This can be used in conjunction with the harmonic and motivic graph shown in Example 11.3 in Vol. 2, illustrating the harmonic classifications invoked in the current study, most of which are informed by Schoenberg's own analysis. The 'thematic motifs' identified in the table are effectively figures which overlay the more detailed motivic structure described below. Their names have been derived from the musical instruction in German with which the

1. Schoenberg 1954: 111.

2. Several writers have discussed *Lockung* in the context of Schoenberg's own analysis. The discussion by Whittall (see Whittall 1993) has been cited in earlier in the current study (see Chapter 2: 57), and Forte contrasts Schoenberg's analysis with a Schenkerian view (see Forte 1978a: 153-155).

3. Schoenberg 1954: 111: '... the contrasting modulatory section in ms 32-41 uses a retransition ...'.

figure was associated in its first instance. Although their subsequent versions are often varied reiterations, these thematic motifs are in general harmony-specific, in that, at the level of chordal classification, their harmony tends to be the same in each case. An interesting exception to this is offered by the '*rascher* figure' which is cited by Schoenberg himself in *SFH*, where he observes that the second instance represents a transposition of the first instance of the passage up a semitone, while retaining the same regional effect.[4] This point, and its implications, will be discussed more fully in the harmony section below.

As implied by Schoenberg's short description, Section 3 is a variant of Section 1, although bars 13-15 are omitted, and bars 20-23 are replaced with four bars (bars 54-7) which make reference to the opening of the middle section (bars 31-3). The comparison of the two sections is shown in Example 11.2 in Vol. 2, where the upper three systems represent Section 1 (along with the four bars of Section 2 when it occurs), and the lower three represent Section 3.

ii) Motif and developing variation in *Lockung*

The connections between three of the motif-forms, α, β and Σ, as labelled below in Fig. 11.1 relate to the score which can be found in Example 11.3.

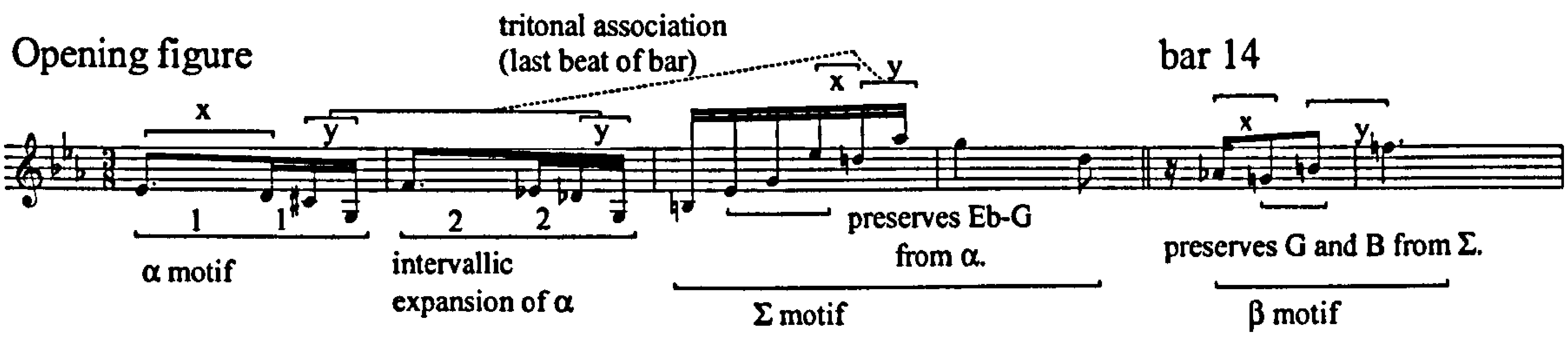

Fig. 11.1: *Lockung*, motif-forms α, Σ and β (based on features 'x' and 'y')

These three motif-forms are thus based on transformations of the motivic features 'x' followed by 'y'. The initial transformation of the α motif retains 'y' (but not 'x'), yet the two notes which it shares with the α motif of bar 1 form the basis of the Σ motif which follows (i.e. the major third between G and E♭ is shared between both notes and the new note, B♮ at the beginning of bar 3). At the conclusion of this augmented-triadic figure the two features 'x' and 'y' appear (albeit dovetailed). Similarly, the β motif-form in bar 14 derives directly from the α motif through its common motivic features, 'x' and 'y'. Moreover, just as Σ preserves E♭ and G from the two

4. Schoenberg 1954: 111.

forms of α, the initial instance of β preserves the notes B♮ and G from motif-form Σ, while E♭ is in fact the next note which the vocal line articulates.

The graph in Fig. 11.2 shows how the α motif can be connected with the δ motif-form, which represents the entry of the voice part.

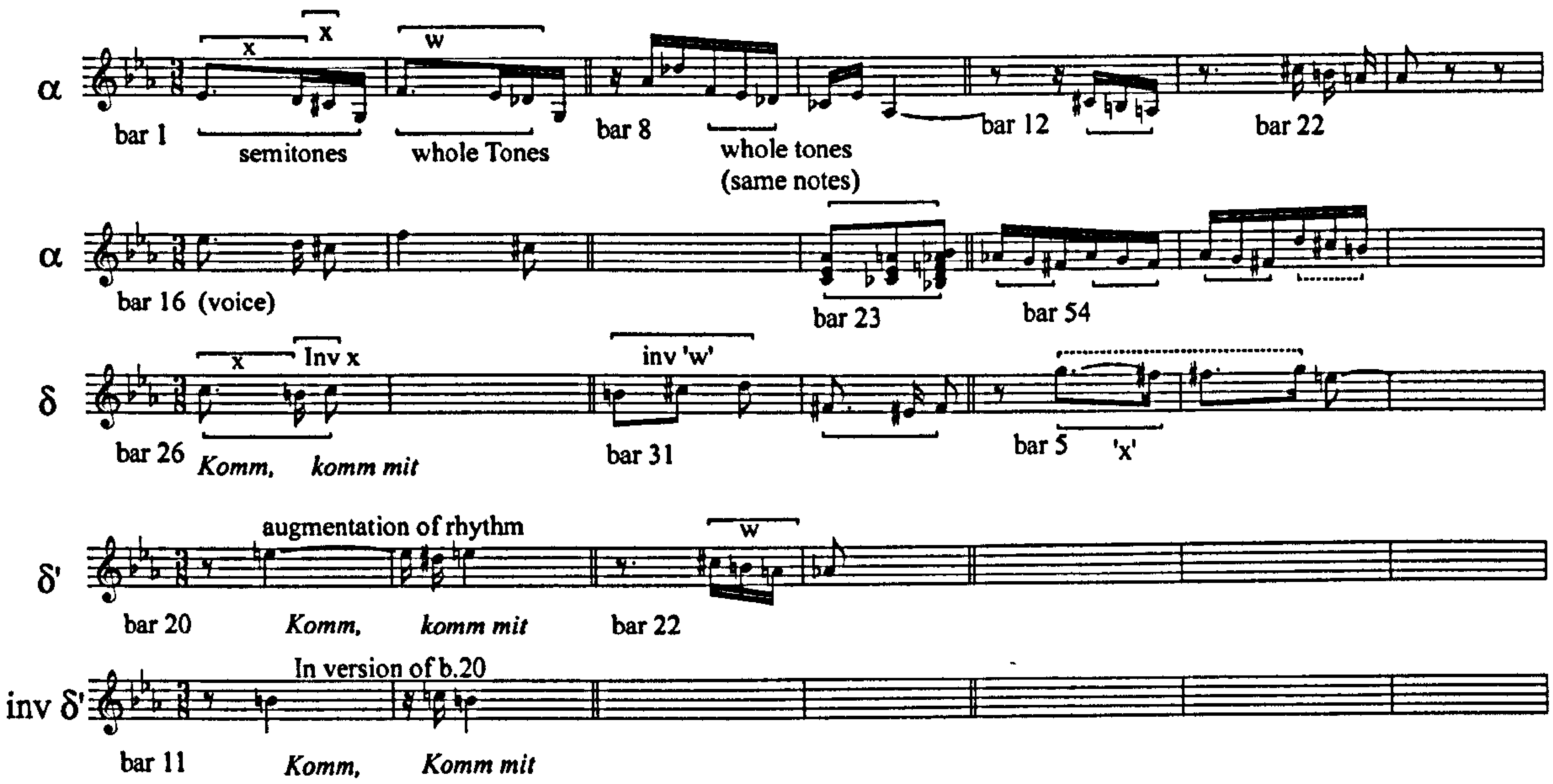

Fig. 11.2: *Lockung*, developing variations which connect the α motif with the δ motif-form

This graph attempts to reconstruct the derivation process which traces the derivation of the δ motif-forms from α. The first two bars of each of the five systems represent gradual changes to the main motif. Note that the ordering is based on derivation and contradicts the chronological ordering of the *Gestalten* in the music. The remainder of each system logs some of the other variations which result from the motif-forms represented in the first two bars. The following commentary traces the derivations.

The opening motif is immediately reiterated in a transformed version: the low G is retained across a transposition up a tone, while the successive semitones have become tones. The return of the motif in bar 16 (second system) in the upper register of the piano is reinforced by the vocal part, which picks out the main notes, hence truncating the original, and creating a new rhythmic pattern. This rhythmic pattern forms the basis of the melodic fragment in the vocal part in bar 26 (System 3), which permeates the middle section (bars 31-40) and was referred to in Example 11.1 as the *langsamer* figure, but its semitonal structure also derives from the opening (as noted by the successive 'x' features). In the following part of System 3, the *langsamer* figure which dominates the central section is shown, depicting it as a conjunction of transformations of both α and its whole-tone version from bars 1 and 2 of the opening. The last part of System 3 shows how the *rascher* figure is derived from this form of δ.

The intervallic and rhythmic relation between this (bar 26) and the beginning of the previous vocal phrase (bar 20 – System 4) is underlined by the fact that the same words are set by each '*komm, komm mit*'. To be precise, the initial note is lengthened by a quaver beat, and the relation is made even more explicit by the combination of this phrase with a second based on motivic feature 'w' in the following bar (bar 22-3). The final system (System 5), which depicts the passage which sets these words for the first time in *Lockung*, completes the derivation process, showing that the initial vocal phrase is indeed derived from the α motif in the piano.

Thus the diagram attempts to illustrate how the developing variation process progresses by looking forward and backwards through the *Lied*'s motifs. It offers a strong testament to the pervasive effect on motif and motivic features on the structure of the melody. The motif-forms and some of the features of both figures are encapsulated in the motivic analysis which underpins Example 11.3.

B) *The harmonic analysis of Lockung*

Schoenberg's chordal analysis of *Lockung* from *SFH* forms the basis for the discussion here.[5] which will highlight a few significant aspects of the analysis. Example 11.3 which includes the motivic annotations and incorporates the chordal designations which Schoenberg has used (and accordingly have been italicised in the diagram), supplementing these with the section not shown in Schoenberg's analysis.

It can be seen from the analysis that although Schoenberg recognises a close relation between tonic and the region of its relative major,[6] the issue of regional proximity between tonic and relative minor regions plays a secondary role to the fact that C and E♭ are distinct regions. Thus C (which is minor) and E♭ (which is major) are regarded as separate regions with distinct dominants. The chart of the regions confirms that the relation between a major and its relative

5. According to the preface of the first edition, *SFH* was written during 'the last years of Schoenberg's life'. Schoenberg's own 'Acknowledgement' is dated 1948, yet the book remained unpublished until after his death.

6. Indeed, in *SFH* the relationship is regarded as close.

minor is no closer than a major and its mediant minor,[7] and accordingly his analysis dramatises the conflict between opposing tonal centres. Thus, wherever the seventh chord on G appears, the latent possibilities of its interpretation are dominant of C minor (underlined by bars 1-3) or the secondary seventh, a mediant seventh of E♭ (underlined by bars 16-18).

The passage shown in the second system of Fig. 11.3 below is highlighted by Schoenberg's discussion. The passage represents literal transposition of a segment from the introduction up a semitone (included in the first system to facilitate comparison), and the two coincide in respect of the figure of bar 8 (bar 45). It is worth noting that in an earlier manuscript this segment remained at the original pitch,[8] suggesting that the idea to raise it a semitone was a late compositional decision.

Fig. 11.3: *Lockung*, harmony of the *rascher* figure

Schoenberg's analysis shows that the harmonies of the former can be analysed in terms of the submediant region, while the latter should be analysed (perhaps obviously) using similar progressions in the context of the 'subtonic'.[9] However, Schoenberg's point is that it also retains

7. Although this view might be undermined by the notion of regional proximity being determined by the number of 'common tones' shared between the respective keys. Indeed, this is a subltle distinction between *HL* and *SFH*, the former emphasising common tones, the latter reflecting a form of symmetry in the structure of the 'Chart of the Regions'.

8. See Schoenberg 1990: 52-56.

9. It is interesting that Schoenberg invokes subT ('subtonic') here, rather than ♭MD (flat mediant's dominant), which one might have expected when a major key forms the overall tonality (E♭ major). Although the subtonic is a term which Schoenberg associates with a minor tonality in *SFH*, the point here appears to be that it represents the region 'two fifths below the tonic' (see Schoenberg 1954: 30 fn.3). Also, note that the unusual VII-III chord progression (noted earlier in respect of *Sehnsucht* (279) is one that Schoenberg actively advocates (see Schoenberg 1978: 50-52).

a degree of harmonic coherence in terms of the submediant, suggesting an alternative understanding of the passage, as shown in the example.[10] He might well have added that in fact the earlier passage could be analysed in terms of the region of the subtonic (D♭) on the basis that a V-I progression persists in bars 7-8 (as noted on the example). That is, the initial instance of the passage expresses the D♭ region, yet can also be interpreted in terms of C minor (the submediant) as Schoenberg's analysis shows. In the repeat, it has been transposed up a semitone, yet it is still capable of being classified in terms of these same regions (D♭ and C minor). It also illustrates Schoenberg's suggestion that the individual regions are less capable of being expressed by increasingly complex chordal structures than in previous music, pointing towards the limits of the integrity of the Roman numeral system in providing sufficient classification for such progressions. In Schoenberg's view, as harmony developed, the increasing complexity of chords facilitated the articulation of more regions simultaneously, yet at the same time less definitively, as suggested by the passage in *SFH* which follows this example.[11]

Another interesting aspect of Schoenberg's analysis, which he goes to considerable lengths to explain, is the alterations to the dominant ninths of the main key as each of his detailed examples a) to d) expands upon the secondary dominants cited in the main analysis. By contrast, the dominants of the region of the submediant are simpler and not discussed. In the analysis, these are always notated as III (of tonic) or V (of submediant), and are generally in their simple 'dominant-seventh' mode. This model illustrates the means and context by which a tonic's 'rivals' may be summoned to undermine the 'supremacy of the tonic'. It offers further support for the argument, ventured earlier, that Schoenberg chose to allow the tonic's dominants to be less categorical (and their structures tend to be altered), while those of the rival submediant region (effectively the secondary dominants) are unaltered, thus allowing a greater tension between regional 'ruler' and 'rival'.[12]

The altered dominants are interesting in themselves, as most are minor ninths with alterations to the fifth, alterations which are regarded as inflections of harmony rather than being justified by counterpoint. This supports the argument that Schoenberg regards their analysis as a harmonic issue, rather than as voice-leading. The passage at bars 20-22 (analysed as 'd' and highlighted in the

10. Schoenberg 1954: 113.

11. Schoenberg 1954: 113.

12. This is one of Schoenberg's more colourful metaphors for competing regions (see Schoenberg, 1978: 151).

text) illustrates the extent to which Schoenberg believes a dominant can be altered and still retain its function. However, the content of this bar is important in terms of the harmonic direction of the middle section (bars 31-38). Briefly anticipated in bar 19, the B minor is an alteration of the dominant based on B♭, recurring in bar 31 in the form of a melodic scalar motif (B, C#, D). In bar 34, however, the motif is articulated against a B minor harmony as part of a section which is predominantly based around B minor (or the region of the flat submediant major) as shown in Example 11.3.

C) *The post-tonal perspective*

The obvious whole-tone segments at the opening as well as at significant points in this *Lied* suggest that an examination of the pc content from the viewpoint of pc-set genera is particularly appropriate in this song. The genera analysis will offer a view on whether the orientation of the piece and its sections is, in the main, diatonic, whole-tone or atonal.

i) Set theory

The segmentation is shown in Example 11.4 in Vol. 2, and it will be seen that a thorough segmentation has been undertaken, addressing melodic material as well as the total content sets. In the wider context of these 1905 songs, it is perhaps predictable that the first notes of the vocal line present set 6-Z19 (echoing an earlier instance in bar 3). The musical segment which underpins this pc-set, however, does not reflect the phrasing of the passage, and the initial phrase consists of that hexad's subset, 5-Z18. Notably, this set is also formed by the first vocal phrase of the second section and is prominent in the final section as well. Nevertheless, the set-relatedness between component melodic fragments is relatively low, with few instances of the type of pc-set recurrences or relationships which had been noted in, for example, *Verlassen* or *Ghasel*, outside the sets mentioned here.

ii) Pc-set genera

The PGS models the introduction in terms of the predominating 7-35/34/32 genus which has dominated the Lieder of 1905 (as well as some parts of the Petrarch *Lieder*) studied here. The fact that the 7-35+ major scale genus and the Fortean G12 follow in second and third place respectively, underlines the undeniable diatonic character of this introduction. Nevertheless, outside the 7-35/34/32 genus, the reduced matrix of the PGS (see Example 11.7) shows a rather inconclusive generic profile, given that the remaining five sets are spread across five genera.

Indeed, Example 11.8, which charts a selection of the top 100 or so genera from the K* intersection matrix, shows that there are significant numbers of relatively simple genera that actually hit on all 15 sets in the matrix. The K* complexes of 9-10, 9-7, 9-8, and 9-11 all hit on the fifteen sets in the matrix, and all have Squos which are reasonably close to that of the 7-35/34/32 genus. The genus based on the K* complex of 8-27 (which is the complement set of that of the dominant-seventh, and is present in the texture) hits on fourteen of the sets, and therefore represents a more suitable genus than the 7-35/34/32 genus from the PGS.

The Fortean genera system conveys a different picture to that of the PGS with the augmented G4 genus in first place, followed by G3 ('diminished') and G2 (the whole-tone genus), the latter hitting on 12 of the 15 sets. The reduced matrix of the Fortean genera system (see Example 11.7) perhaps models the harmonic species of the introduction rather well in that the first two bars (characterised by 4-5 and 4-21 aggregating to 5-9) are somewhat whole-tone, especially given the content of the second bar, and are followed by a figure which is based on the augmented triad (as is the set of the entire bar, the ubiquitous 6-Z19). The remaining content, led by the segments which are represented by sets 5-34, 6-Z42, 8-27 and finally 6-33, alongside the linear phrase (6-15), all belong to the G3. Both interpretations appear valid, the former emphasising a holistic view in terms of the scalar constructs which could be regarded as the legacy of the harmonic tradition, whereas the latter identifies the separate parts in terms of the symmetrical constructs.

Section 1

The prominence of the 7-35/34/32 genus as well as (from the Fortean system viewpoint) the augmented genus extends into the first section.[13] In fact, the different views generated by the different systems suggest that the passage be broken up into several, more manageable subsections.

The first five bars, therefore, can be seen in terms of the diminished-seventh genus (4-28+) from the PGS, on the basis of pc-set 5-31 (bar 15), and the total content segments in bars 14 and 15, while in the next three bars the whole-tone tetrad genus, 4-21+, is the main genus on account of the content of bar 17 and the melodic line. In both cases, the 7-35/34/32 genus is in second place (and the 6-Z19/44 genus in third), underlining that the remainder of the texture is underpinned by the former, while the independence of the 6-Z19/44 genus from the wider domain

13. It is interesting to note that the status of G4 is not supported by the POF score, whereas the 7-35/34/32 genus does score reasonably highly in the POF table.

encapsulated by the 7-35/34/32 genus is not sufficiently articulated in the texture to allow it to be proclaimed as an influential entity.

A theoretical issue is raised in the matrix which addresses the following 4 bars, in that the genus based on the whole-tone tetrad (4-21+) fails to predominate over the major-scale 7-35+ genus, when it is clear that bars 20-21 are whole-tone based. Nevertheless, the K*/Kd system shows that the genus based on the whole-tone scale (6-35) outscores that based on 7-35, on the basis of its three hits,[14] and the Fortean system allows its 'whole-tone' genus, G2, to predominate over the next placed genus, G7, although the comparatively lower Squos of the Fortean system point to the lesser significance of its genera (see Example 11.9). This of course offers an indication of the importance of adopting a wider perspective than simply focusing on a single genera system, highlighting the strength of the narrow focus of the 6-35 genus, yet emphasising that the 7-35 genus, the main content of which can be found in bars 22 and 23, encapsulates some of the content of the whole tone genus (such as pc-set 4-21).

In the passage which spans the interlude (bars 23-25), although the octatonic scores highly in the PGS, its hit-list includes neither 6-31 nor 6-Z47. A more appropriate genus is offered by the Fortean G3 'diminished' genus which accounts for 6 of the 8 sets, including the central axis of 5-16, 8-13, 6-31 and 6-Z47.

Section 2

The octatonic, highlighted in the subsection just discussed (bars 23-25), becomes the central component of the second section, as indicated by the PGS, supported by the 7-35/34/32 genus. Indeed, this view of the generic profile of the entire section is supported strongly by the K*/Kd genera system, which places octatonic 8-28 in first place ahead of the two diatonic scalar constructs, 7-32 and 7-34. The octatonic sets are situated mainly in bars 38–40, the lattermost particularly indicative of octatonic content (see Example 11.10). The Fortean system, which depicts G12 predominating over G3 (diatonic over the quasi-octatonic diminished genus), does not identify this separation, and its substantially lower Squo scores indicate that its model is less appropriate than the PGS.

14. After all, there are only fifteen sets in the 6-35, whole-tone genus.

Section 3

In the PGS, the Fortean G12 genus predominates in Section 3. Yet the Squos of the Fortean system exceed those of the PGS significantly, and those of the top three genera are higher than G12. G10 (a hybrid genus labelled 'atonal-tonal', indicating that it is formed by the intersection of Kh of 3-4 and 3-1) predominates with some nineteen (out of 27) hits. The importance of the Fortean system is underlined by the fact that its Squos exceed those of the K*/Kd genera systems, indicating that the pc-set content of the section is not underpinned in any way by the embedding relations of any pc-set.

More detail on this hybridity can be gleaned from an examination of the two subsections. In the first, G12 does predominate (as indicated by both Fortean and PGS), with twelve out of fifteen hits. In the second subsection, the predominance of the Fortean G4 is supported by the positions of the 4-19/17 genus and the IC4 genus in their respective systems. The focus of the primary genera in each of these systems is the semiquaver passage between bars 60 and 63, which is no longer octatonic or diminished as was the similar passage in bars 23-25. The generic profile is perhaps most aptly captured by the IC4 genus, that presents a connection with the 5-Z38 set of bar 55, that has been otherwise regarded as diatonic. Detailed examination thus points to the nature of the hybridity of the overall genus, G10: on the one hand, it reflects the diatonic character of the first subsection, on the other, the IC4 (or 4-19/17) basis of the final bars.

iii) Pc-set genera summary

The chart in Fig. 11.4 attempts to summarise the generic profiles of *Lockung*.

Section	Key Genera	Alternative	Supporting Genera
Introduction	7-35/34/32 (extended diatonic)	G4 (augmented) G3 (diminished) G2 (whole-tone)	7-35+ G12 (dia-tonal)
Section 1	4-28+ (diminished-seventh) 4-21+ (whole-tone) 6-35 (from K*/Kd genera) Octatonic	7-35/34/32 (extended diatonic) G4 (augmented)	
Section 2	Octatonic		7-35/34/32 (extended diatonic)
Section 3	G10 (atonal-tonal)		G12 (dia-tonal) 4-19/17 (atonal) IC4

Fig. 11.4: *Lockung*, summary of pc-set genera by section

The pc-set genera of *Lockung* highlights the sectional nature of the work, with pc-set genera articulated by blocks of pc-set segments, the profile of which changes significantly every few bars. The nature of the genera used range from the 7-35/34/32 genus which appears regularly within the *Lieder* of 1905, through whole-tone type genera, the octatonic genus and even augmented-type genera. *Lockung* thus eludes the establishment of an overall generic profile.

D) Conclusions

Although the motivic concentration which was revealed in the analyses of *Alles* and *Am Wegrand* can also be found in *Lockung*, the harmonic analyses are strongly indicative of a more traditional approach to tonality. After all, Forte's 1978 article demonstrates an *Urlinie* in the first part of the song,[15] albeit in the 'wrong' key, but this deference to a more traditional approach to harmony is supported by the lack of expansiveness in chord type or in terms of distant regions in Schoenberg's chordal analysis (Schoenberg's point, that the ultimate tonal centre is avoided in the earlier sections, notwithstanding).

The analysis of pc-set genera, however, suggests considerable variety in terms of the harmonic species used, with frequent switches in a short span of music. This suggests a less conclusive picture of harmonic content, and one which does not support the suggestion of a conservative use of harmony.

The initial avoidance of the eventual tonal centre by making use of alternative regions (the submediant and the ♭submediant – the minor subdominant's relative major) which are nevertheless well defined, makes a rather fitting, if obvious, use of a metaphor for the technique of the seducer as described in the poem in entrapping his victim, as does the fact that at the end the 'correct' tonal centre arrives. The variety of harmonic species deployed suggests another such metaphor, whereby the different species represent different angles from which the seducer may try to persuade his prey to submit to his will.

15. See Forte 1978a: 153-155.

Analysis 12: Op. 6 No. 3, *Mädchenlied*

The character of *Mädchenlied* represents an appropriate partner to the playful mood and wit of *Lockung*. Together, these two final songs written during 1905 contrast with the serious tone of *Am Wegrand*, the sense of mystery generated by *Alles*, and the more philosophical *Der Wanderer*. Underlining the three-part sectional structure of Remer's text, Schoenberg's setting of *Mädchenlied* may be partitioned into three parts of approximately equal length, punctuated by an A♭/E minor juxtaposition, in varying contexts. The asymmetrical *a a' b* structure, which an initial hearing suggests, reflects perhaps the contrasting judgements of the *Mädchen's* predicament offered respectively by *Mutter*, *Bruder*, and the sympathetic *Schwester*. Nevertheless, a deeper examination of the underlying harmony suggests a uniform and coherent harmonic language, displaying a degree of structural subtlety within the extended tonal framework typical of the 1903-5 songs.

A) *Form and motif*

Example 12.1, showing the vocal line only, illustrates some of the motivic detail of *Mädchenlied* from the three sections. The content of the opening bar may be regarded as the work's *Grundgestalt*: specifically, the example shows how much of the motivic material of the work can be derived from the combination of D♯ with the E minor triad that characterises both the vocal line and RH of the piano part of the first bar. It can be seen that the notion of thematic motif has all but disappeared, the only semblance of thematic recall occurring at the beginning of the second verse where the motif labelled α is recalled (bar 9 – System 3 in Example 12.1). The detail reveals this to be an example of developing variation in that the motivic feature labelled 'x' has been transposed up a semitone. This gives rise to a new motivic feature (labelled 'z', effectively a triadic figure which, of course, is implicit in α), the untransposed retrograde form of which forms a pivot for the *Gestalt* in the following bar (labelled δ). In this way, a new motif-form (which is recalled in Section 3) is formed. One could also argue that the reiterated fourth motif (labelled 'w') that is common to both 'y' and 'z' emerges at this point.

In Section 1 the opening motif feature 'x' is subjected to immediate variation (through inversion), while a second motif feature ('y') is also varied, and at the outset of the new phrase (bars 4-5) it is a further variant of 'y' (whereby the direction of the interval is varied) which sustains the continuity. It is interesting to note how the piano part interacts with the vocal line – in the first phrase, the notes which it articulates in bar 1 are essentially those of the piano part. In bar 5 it offers a 'free variant' of the shape of the beginning of the vocal phrase in diminished rhythmic values.

The main theme of the third section represents a culmination of some of the content of the openings of the other two sections. Thus, the motif feature 'x', which consists of D♯-E in the first section, is followed by the 'F♮-E' form from the second section (bar 16), while in the following bar the two are synthesised to form the succession F♮-D♯-E. Bars 19 and 20 represent a free variant of bar 12, and although 'x' appears in long notes in bar 22, the final four bars may be regarded as a form of liquidation of the motivic material: the characteristic 'semitone plus interval' motifs, giving way to an articulation of the whole-tone scale amid lengthening note values.

In this way, *Mädchenlied* offers a succinct example of Schoenberg's concept of the motivic manipulation which underpins 'developing variation', while also exemplifying some of his formal processes.

B) The harmonic perspective

The issue as to whether the main tonality be regarded as E minor (as indicated by the key signature) or E major can be resolved by citing Schoenberg's view that the overall tonality should be that in which the work concludes,[1] and both the final cadence at the conclusion of the text setting (which is articulated by the clearest sustained V-I progression to be found in the early *Lieder*) and the conclusion of the postlude offer E major as the final chord. The stark contrast of E major and E minor during the piano postlude of the song, where E minor is introduced by the A♭ (G♯) chord at the end of bar 26,[2] illustrates Schoenberg's statement that major and minor regions based upon the same tonic note can be interchanged on the basis of the fact that they share the same dominant.[3]

Yet the approach to E minor from the A♭ chord is a harmonic detail that encapsulates one of the important strands of coherence within the harmonic process of the earlier sections. Thus, the

1. That is, Schoenberg 1954: 19. See Chapter 3: 65.
2. The progression recalls the homophonic opening of *Natur*, where a C minor triad follows E major.
3. 'Interchangeable' is the term used in *SFH* (see Schoenberg 1954: 51).

predominance of E minor at the beginnings of the first two sections in *Mädchenlied* are tempered to some degree by the growing influence of A♭ (or G♯). In Section 1, the A♭ chord which occurs in bar 5 prepares the way for the G♯ of the first articulation of E major (bar 7), while in Section 2 the emergent G♯ (bars 10-11, discussed below), which is part of an E seventh chord, anticipates the asserted A♭ minor chords (juxtaposed with E minor) in bar 14. The following discussion, in which the harmonic coherence within each section will be the focus, refers to Example 12.2 in Vol. 2.

i) Section 1

The first section is dominated by the regions of E minor and its mediant minor (G minor), which is characterised by its own dominant (bars 5 and 6), as well as its own Neapolitan. The emergence of C major towards the end of the section can be described as the submediant of the overall E tonic, or the subdominant of G.

The G minor region of bars 4-6 is prepared in bars 1 and 2, where both D♯ and A♯ appear as alterations to the prevailing E minor (see Fig 12.1 below). Thus, the reiterations of E minor in bars 1-2 are supported by voice-leading: D♯-E, which recurs as a motivic feature of the vocal line. Yet the reiteration of the augmented triad figure (in the context of Schoenberg's diatonic seventh on the first degree of minor)[4] in bar 2 affords the D♯ a degree of autonomy, allowing it to lead at the end of the bar to C♮ in the bass (albeit in the context of a further instance of the D♯-E motif in the vocal line). In the second part of bar 3, the association of D♯ with C is reinterpreted as E♭-C, as part of the C minor figure which is formed as part of the half-diminished-seventh on A, the natural supertonic seventh chord of G minor. Similarly, the prominent A♯ in the piano (bar 2) suggests a mixolydian alteration, given its linear association with B, while its immediate context within the RH piano part is with G and D♯. The same notes appear at the beginning of bar 4 in a similar texture (RH piano, arpeggio figure), but their context is more clearly G minor. In this way, these notes form an anticipation of the regional movement of the whole. It is through such detailed preparation that the progression from E minor to G minor is effected, and the entire passage offers a useful example of Schoenberg's extended tonality, in this case E minor extended by its mediant minor.[5]

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4. See Schoenberg 1978: 365.

5. It is interesting to note further that these two notes (D♯ and A♯) extend the notes in their immediate context (E-G-B in the former, and G-D♯-B in the latter) to form the two 4-19

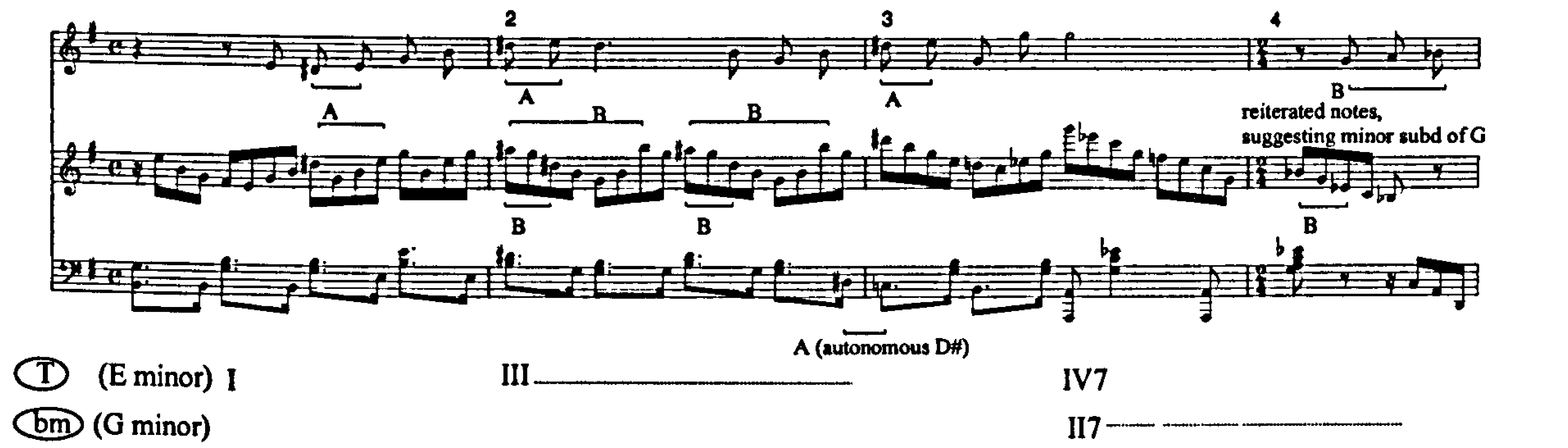

Fig. 12.1: *Mädchenlied*, the instances of D♯ and A♯ which anticipate the G minor region

The progression involving the alternation of the seventh chord on D with an A♭ seventh chord in bar 5 suggests the establishment of mediant region through the alternation of Neapolitan with dominant, but the former chord (A♭) might also be regarded as the result of the influence of the E minor's submediant region (C minor/major) which emerges in the next few bars. The G minor region itself is undermined by the seventh chord based on G (this secondary dominant providing further evidence of the emerging influence of the submediant), which moves directly to an E chord through chromatic movement (i.e. dyad G-F moves to A♭(G♯)-E within the LH piano part).[6] Such progressions (III7- I) are classified by Schoenberg as cadential, and are representative of what he calls strong, descending thirds progressions.

The final passage of the first section (bars 7-8) summarises the key harmonies of the section (see Fig. 12.2 below). Initially, it comprises alternating C major and D triads which are presented as a kind of suspension between the LH and RH of the piano. In terms of harmonic function around the overall tonality of E, C major represents the (flat) submediant region, while D is appropriately the dominant of the flat mediant,[7] which has been noted in other places in this repertoire. The emergence of the D minor chord might be regarded as a result of the interaction of these two regions (G minor and C major), whilst the ensuing A♭ chord refers to bar 5.

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formations which the pc-set analysis identifies. Thus, a more objective harmonic model might regard these notes as a constant which allows for coherence to be achieved between separate regional contexts, although this is clearly not the harmonic model which Schoenberg describes.

6. This kind of progression is suggested by Schoenberg; 'Thus in general the best connections of simple chords with vagrants or vagrants with one another will be those in which the second chord contains, as far as possible, only tones that appeared in the first or are recognizable as chromatic arising or lowering of tones of the first.' (Schoenberg 1978: 259).

7. ♭MD (flat mediant's dominant) is the classification of the region of the flattened seventh degree of the scale, as described in the chart of the regions from *SFH* (Schoenberg 1954: 20), although here, of course, it is just a chord representing the mediant region.

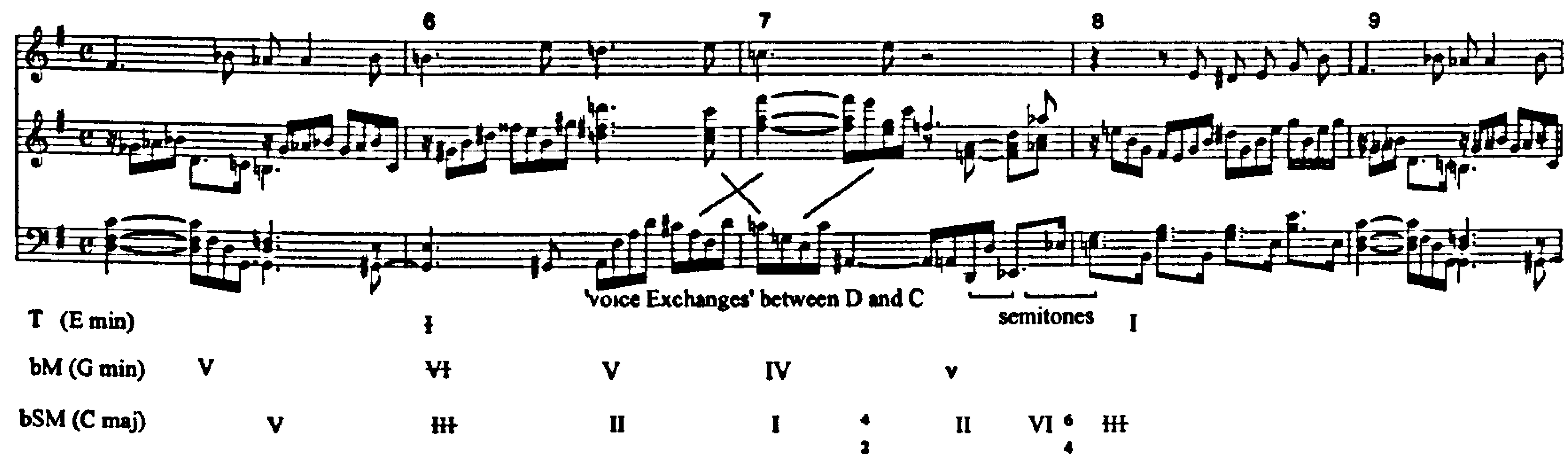

Fig. 12.2: *Mädchenlied*, bars 5-8, harmony

ii) Section 2

In the second verse, the region of the minor subdominant provides the extension to E minor, although A minor itself is hardly asserted (and is not noted as such in Example 12.2). The influence, however, is made clear through the modification of the notes (F♯ becomes F♮, D♯ becomes D♮, while G♮ becomes G♯), which can be observed in the comparison shown in Fig. 12.3. The figure also shows another example of one of Schoenberg's variation techniques, in which a segment of the complete texture that has previously been established is transposed up a semitone, while its complete context remains at the original pitch level, as discussed in respect of *Lockung* and *Natur* (see Fig. 12.3).[8]

As part of this process, one can find that the mediant harmony of bar 2 (in the first section) is alluded to at the *end* of the second bar in Section 2 (bar 10). This passing allusion belies the fact that the constant D♯s of the opening phrase have become D♮s in bar 10, imbuing the reiterated E with a seventh that points in the direction of the (minor) subdominant. Further preparation in the form of G♯, juxtaposed with G♮ in bar 10, can be found in bar 11, when G♯ acquires a degree of independence and prominence in the vocal line. Both the D♮ and G♯ are strongly suggestive of the minor subdominant region. The LH of the piano part in bar 11 includes a number of alterations: B♭ in bar 11 represents an alteration of the fifth which Schoenberg describes in *HL*,[9] while C♮ and G♭ represent alterations that transform the E chord into a whole-

8. In *Natur*, this could be observed in Section 3 where E major and F major tonalities were juxtaposed, while in *Lockung* this was referred to as the '*rascher*' figure in bars 5-7, which was transposed up a semitone in bars 42-44.

9. This chord is the 'additional' vagrant chord referred to in *HL*, as resembling a dominant with flattened fifth.

tone chord.[10] Indeed, the following passage, in which A minor is articulated in the RH of the piano part, while F major appears in the LH, illustrates a *double entendre* that is consistent with Schoenberg's classification of the whole-tone chord: the E functions as dominant of A minor, while the equally prominent C♮ functions as dominant of F major. Therefore, in bar 12, the influence of the minor subdominant is extended to include articulations of E minor's Neapolitan, F major, and in turn, F's relative minor, D minor (which was also significant in Section 1).

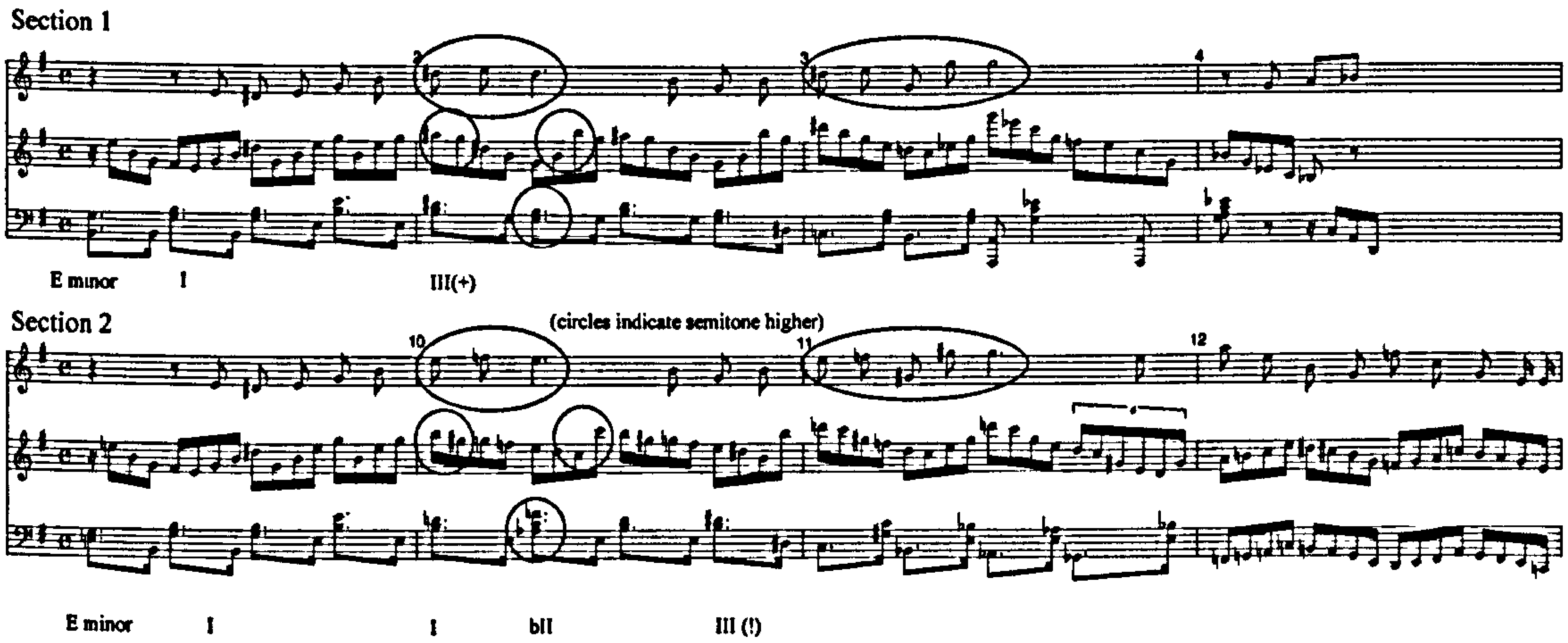

Fig. 12.3: *Mädchenlied*, comparison of Sections 1 and 2 in terms of motivic features

The G♯s, which pointed towards the minor subdominant, anticipate the A♭ which becomes prominent at the end of this section. In fact, in bar 10, where G♯ is associated with G♮, the enharmonic A♭ appears in the bass line associated with the notes E and C, an association sustained in bar 11 on beats 1 and 3 respectively, and it is perhaps not surprising to find that these associations form the basis of the triadic juxtapositions with which the section concludes (extending from the end of bar 13 to bar 15). It could be argued that bar 13 makes reference to the A♭'s association with D in Section 1 (bars 5-6 and at the cadence at bar 8), but it is the juxtapositioning of A♭ minor with E minor which dramatically dominates the conclusion of this section. Fig. 12.4 shows the extent of the E minor/A♭ minor juxtapositioning.

10. Schoenberg describes 'whole-tone chords' in a chapter in *HL* (Schoenberg 1978: 390- 398). The resolution he offers whereby any of the notes may be considered a root, is followed here (although the principle is analytically trivial).

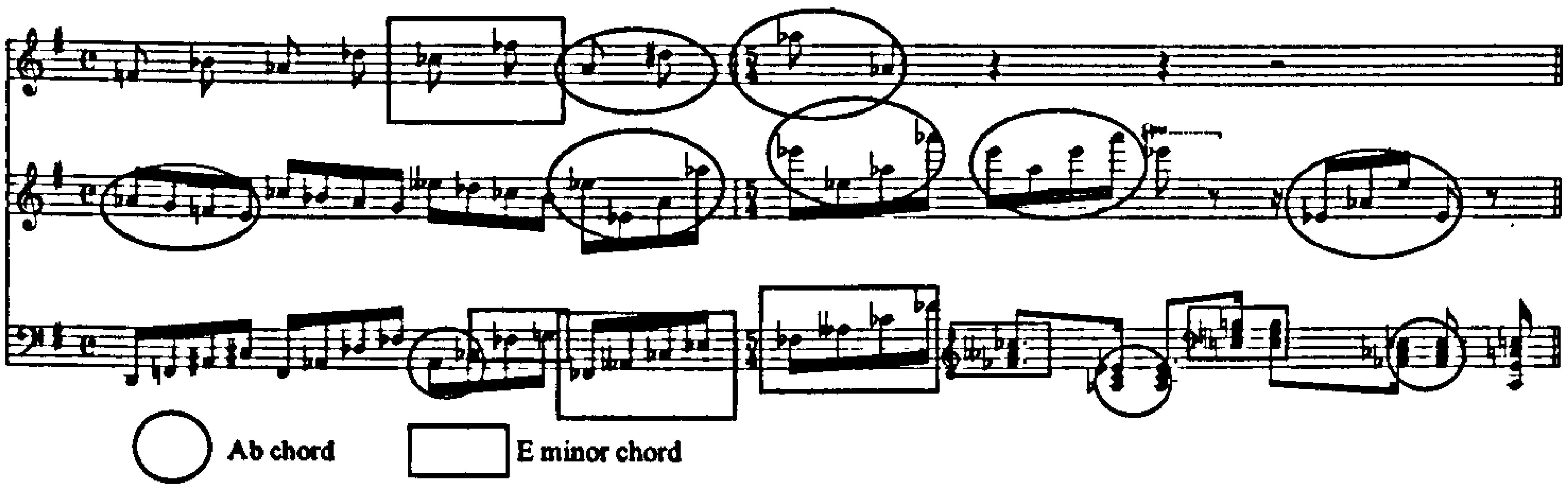

Fig. 12.4: *Mädchenlied*, bars 13-14, juxtapositioning of E minor with A

iii) Section 3

The opening of the third section consists of a number of harmonic details that refer to and complement the harmony of previous sections. The C major chord, which follows the E minor and A♭ minor chords in bar 15, completes the articulation of the augmented triad (or an equal division of the scale) by the roots of these diatonic triads. The motif D♯-E♮, which also dominated the opening of the previous two sections, initially connects the A♭ triad with the new C major triad in the top voice. It also underpins the alternating major and minor modes of the C chord which dominates bars 15-16, at the same time alluding to the leading-note/tonic component of the tonic key, E minor, which is realised in the following bar (bar 16) supported by an augmented-sixth-type progression.[11] The F/A chord in the RH piano enriches the progression to E minor with a strong sense of the Neapolitan, which is reasserted in the following bar (bar 17).

It is apparent that the focus on E's Neapolitan prepares the content of the following bars which point to the region of D minor (bars 17-19), a reference perhaps to previous instances of the ♭MD region, while the ensuing passage in which the texture of the opening is recalled (bars 19-23) is based upon F major. A sustained articulation of E's dominant leads to the tonic in bar 26 representing the most conventional final cadence of all of the songs in the current study (see Example 12.2).

The short postlude comprises two phrases, both of which are characterised by pianistic figures in which the two hands move in contrary motion. The first is a rhythmic variant on the opening motif which juxtaposes E major with E minor, and E minor with D minor. In this phrase, the D♯ forms a kind of 'dissonant pivot': in the context of E major/minor it is the motivic element

11. The third of a minor chord which leads to the tonic of a subsequent chord (in which the roots rise a third), is reminiscent of the opening progression in *Natur* (bars 7-8). But the C major-A♭ minor progression in bar 15 is a more accurate replication of the *Natur* progression.

which recalls the opening of the first two verses, while its appearance within the D minor triad in the second half of bar 27 forms an augmented-sixth with F which ultimately resolves to the note E (recalling the first part of Section 3). The second phrase is characterised by a figure which leads to the final E chord, in which the two parts acquire harmonic independence: the RH articulates an arpeggiation of the dominant thirteenth of the E major region (without the root), while the LH consists of an arpeggio figure which combines triads F major and D minor with the root of the dominant thirteenth, B. Thus, through the LH figure, the final phrase makes reference to the regions of the third section, as well as to the harmonies of bar 12.

As in the other 1905 songs, the harmonic content of *Mädchenlied* suggests a scaling down of the number of regions used (as well as of the distance from the tonic) in comparison with the earlier *Lieder* examined in this study. This observation is counterbalanced by the integrated character of the extended harmony, in which the regions are prepared in advance and referred to later. This expansion of scope allows certain associations (such as the juxtpositioning of E minor and A♭ major) to be sustained, offering a means for the articulation of the sectional structure of the work.

C) *The post-tonal perspective*

i) Pc-set analysis

The texture of *Mädchenlied*, with its reiterated figures and florid semiquaver content, lends itself rather well to pc-set segmentation. For example, at the opening, the focal pc-set is the augmented triad formed by the notes D♯(E♭), G and B, which is the invariant subset of the two forms of 4-19 (as indicated on the pc-set segmentation in Example 12.3), which in turn aggregate to symmetrical set 5-22 that forms the total content of bar 2. This segment is circumscribed by its complement, 7-22 and, in a similar manner, the total content of the following two beats forms 7-34 (bar 3) which circumscribes its pentadal complement, 5-34.

As might have been expected, given its recurrence in the other works, 6-Z19 is formed by the total content of the first two bars. Yet it does not become a recurring entity in *Mädchenlied* as in some of the other *Lieder* examined. When the opening melody returns at the beginning of the second section, in bars 9-11 its expanded form constitutes 6-15 which shares 'similarity relations' (R2Rp) with 6-Z19, and is reiterated by the different motivic content in bar 12.

Another recurring element is set 4-19, although its frequency in Sections 1 and 2 is not matched in Section 3 where it is absent, perhaps adding to the sense of contrast which Schoenberg has obviously set out to present in the third section.

The hexatonic set 6-20 takes on a structural role in that as a 'total content set' it punctuates the end of each section, initially occurring briefly between bars 8 and 9, then more overtly in the 'crashing chords' figure that marks the end of Section 2, and finally between bars 26 and 27 at the end of the third section.[12] The instance at the end of Section 2 is interesting, as it is formed by transpositions of major or minor triads in which ic4 plays a significant role (this ic being maximised within pc-set 6-20). The interesting point is that the passage is immediately preceded by a series of octatonic-based figures which are linked by transpositions based on ic3, the interval that is maximised in 8-28 (the octatonic set).[13] Fig. 12.6 illustrates how this passage can be analysed as a juxtapositioning of octatonic and hexatonic pc-set components.

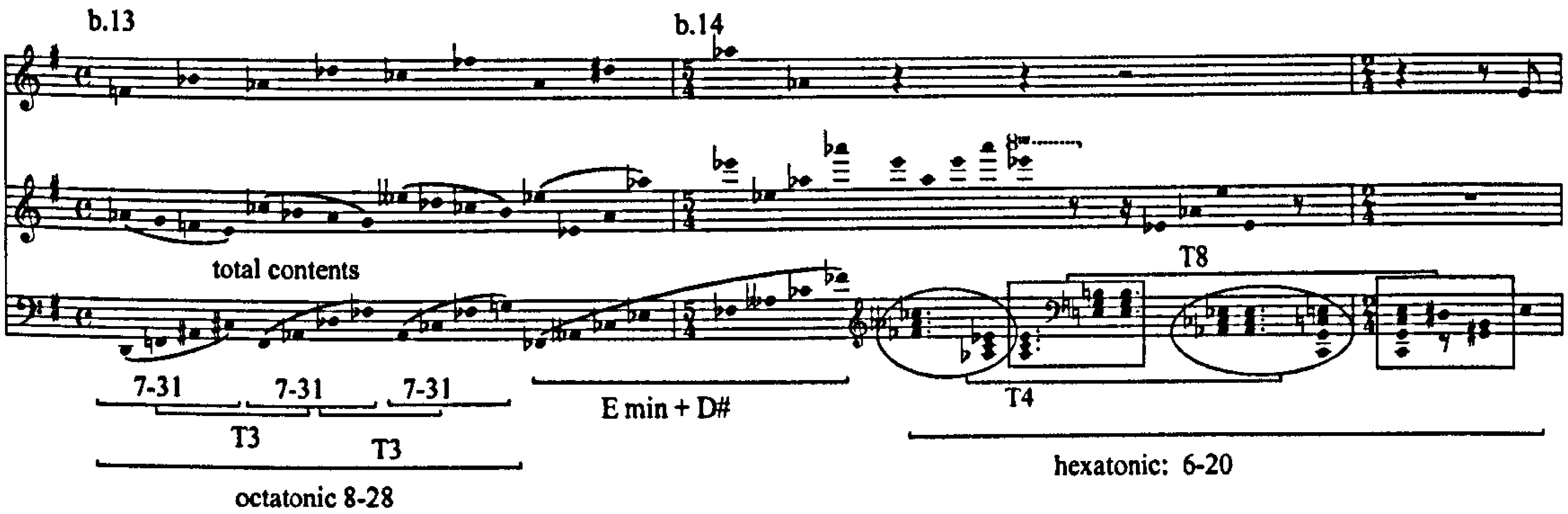

Fig. 12.5: *Mädchenlied*, bars 13-14 - hexatonic and octatonic formations

The second phrase of the postlude is interesting from a pc-set perspective, because the pc-set of the RH figure (6-Z45) forms a complement of that of the LH (6-Z23), which is one of the octatonic hexads. This symmetrical formation of the last 6 bars of the *Lied* follows two others: bars 24-25 comprise (separate instances of) the symmetrical whole-tone set 8-24, and bars 26-27 include the instance of the hexatonic set referred to above.

12. Each of these instances is indeed at the same pitch level. The same set of notes was identified in the harmonic analysis, in the discussions of the juxapositioning of E minor and A♭ major. The point that the pc-set analysis bears out is that these notes represent a symmetrical pc-set.

13. The octatonic set itself does not appear here – rather, the only octatonic heptad, 7-31, appears.

ii) Pc-set genera

Although a degree of caution has been argued in respect of G4 (from the Fortean genera system) scoring a high Squo in some of the earlier analyses, it is clear that the eleven hits it secures in the segmentation which underpins Section 1 support the prominent status it was accorded in the generic profile of the section. The prominence of the genus formed from the K* complex of 6-35 is underpinned by an equally high Squo, although its five hits represent a significantly lesser portion of the segmentation than does G4. Nevertheless, its claims are supported to some degree by the second placing of both the IC2 genus (in respect of the Parks IV system) and the 4-21+ genus (in the context of the PGS), and it is clear that the generic profile of Section 1 should be divided into parts.

Thus, the profile of the first three bars (and in particular the segmentation as described above) is captured most succinctly by the Fortean G4, while its depiction of the 'dia' G11 genus in second place (accounting for sets 5-34 and 4-22) also appears appropriate, substantiated by the status of 7-35/34/32 in respect of the PGS and the appearance of IC5 in the top three of the Parks IV system (see Example 12.4). It is interesting to note in respect of the PGS that neither the 6-Z19/44 genus nor the 4-19/17 genus prove able to assert themselves against the 7-35/34/32 genus,[14] suggesting that these genera defer to the overall influence of the more traditional constructs. The Fortean generic model of the passage appears to be the most apt.

In the following subsection, bars 4-8, the Fortean G4 also scores highly in the Squo scores, although all other systems appear to prefer a whole-tone interpretation (6-35 is in top place in the K*/Kd genera system, IC2 is in top place in the Parks IV system, and the 4-21+ genus tops the list with eleven hits out of fifteen in respect of the PGS). Even within the Fortean genera system, its whole-tone genus, G2, is in second position, while the genus based on K* of 3-12 has nine hits and a comparatively low Squo of 0.706 (as can be seen from the K*/Kd genera system). This apparent anomaly is indicative of the difference between the Kh and K* complex when used as the basis for genera. The interpretations in Example 12.7 are therefore offered as alternatives, the Fortean system underlining that the augmented triad and whole tone scale are related entities,

14. To be sure, on an individual basis one could counter-argue that 6-Z19 gains a degree of independence from 7-32, the harmonic minor scale genus, on the basis of the statistic that (in respect of the K*/Kd Genera System) 6-Z19 receives a marginally higher Squo (0.1048) than does 7-32 (0.0995). The point made here, however, is in respect of the more general genera that have been established and identified throughout the works examined here.

while the PGS distinguishes between whole-tone segments (characterised by their membership of the 4-21+ genus) and diatonically related segments (characterised by the 7-35/34/32 genus).

In Section 2, the fact that G4 once again scores a significant number of hits ensures that its Squo is high in comparison with the other genera (throughout all the genera systems). There appears to be support from the other systems in respect of its first position, in that the K*/Kd genera system assigns first place to the hexatonic set 6-20 (with which set 3-12 shares some intuitive similarity),[15] some distance ahead of the genus based on the whole-tone set (6-35). Moreover, the IC4 genus and the 4-19/17 genus top the lists in their respective genera systems.[16] Although the prominence of G4 is undeniable, the other systems appear to capture more clearly the confrontation between the hexatonic and octatonic that was noted in the discussion of pc-set structure above (see Example 12.8). Thus, the PGS demonstrates the clash between the 4-19/17 genus, the octatonic and indeed the diatonic G12. Similarly, the Parks IV genera system portrays this in terms of its IC4, IC3 and IC5 genera, which occupy the top three places, while in the reduced matrix the K*/Kd system lists the genera based on 6-20 and 8-28 within the top three.

The subdivision of the section confirms the appropriateness of the PGS, with the 4-19/17 genus predominating over the first four bars (with instances of 4-19 and 4-17 leading the way), while in the following subsection the assertions of the octatonic genus outweighs that of the 4-19/17 genus. Had G4 been included in the PGS, then it would of course have out-scored the octatonic genus, but this is probably immaterial: the main point is that these two genera underpin the pc-set content of the section, and have asserted their independence from the more diatonic genera.

In Section 3, the twenty hits of the 4-21+ genus point to an inherent whole-tone character which is underlined by the Parks IV system and the K*/Kd genera system. The detail of the subdivisions shows that this is most evident in the first 5 bars (bars 16-20), where the linear phrase and total content segments of bars 16 and 17 prevail over the diatonic pentads 5-27 and 5-29 over the next two bars. In the last subsection, the prevailing 4-21+ genus accounts for the majority of the total content sets, with the exception of the diatonic 5-27 (followed by its complement 7-27) in bar 23,

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15. The hexatonic can be regarded abstractly as a conjunction of two augmented triads a semitone apart.

16. The IC4 genus is reasonably similar to the genus based on G4 (despite the former being twice the size of the latter) with a Difquo of 0.1164. This is not true of the relationship between the 4-19/17 genus and G4, although a comparison of the reduced matrices in Example 12.8 show that they hit on a fairly common group of sets in this segmentation.

before the double articulation of whole-tone octad 8-24 (the significance of which is indicated by its second position in the K*/Kd genera system for Section 3).

The weight accorded to G4 (supported by the IC4 and 6-20 in the Parks IV and K*/Kd genera systems, respectively) as well as the octatonic genus in the postlude, reiterates the tension between octatonic and augmented genera as discussed in the conclusion to Section 2. In this way the conclusion reiterates previous material.

iii) Summary

The consistency of the articulation of the G4 genus in the context of the Fortean system points towards a homogeneity of harmonic species throughout *Mädchenlied* in favour of the augmented triad and its Kh complex. Yet if this genus is excluded, the analysis points to significant inter-sectional contrasts. Thus the first section is framed around the conservative 7-35/34/32 genus, the second consists of an atonal genus: 4-19/17, while the third emphasises the whole-tone genus (with the diatonic major scale genus, 7-35, in second place). The second section is particularly interesting in that the concluding material (in which the octatonic sets are followed by the hexatonic) shapes the entire section around the 4-19/17 genus, and while 4-19 recurs throughout Section 1, the analysis of the genera suggests that its content is not assumed by the other segments, as it is in Section 2.

Section	Key genera	Alternative	Supporting genera
Section 1	G4 (augmented)	7-35/34/32 (extended diatonic) 6-35 (from the K*/Kd genera)	4-21+ (whole-tone tetrad)
Section 2	G4 (augmented)	4-19/17 (atonal)	Octatonic
Section 3	4-21+ (whole-tone tetrad)	G4 (augmented)	7-35+ (diatonic)
Postlude	Octatonic	G4 (augmented)	

Fig. 12.6: *Mädchenlied*, summary of pc-set genera by section

D) Conclusions

All three perspectives support the idea of a three-part formal partition governed by an overall sense of structural coherence in which the *a a' b* formula suggested at the outset prevails. The analysis of genera and the harmonic analysis also identify elements and procedures (such as the recurrence of G4 and the careful preparation of new regions) which support the argument that *Mädchenlied* exhibits a singularity of style and language.

The tumultuous opening motif (labelled α in Examples 12.1 and 12.2), with its arpeggiated semiquaver accompaniment, is therefore not a *Leitmotif* that represents the 'the lover's passionate kiss': after all, the kiss is referred to in all three verses, and the *Gestalt* upon which the α motif is based does not appear in Section 3. Rather, it conveys a sense of the reaction to the kiss by mother and brother: agitated and concerned, the reaction of the former is set to a harmonic species that is to some degree conservative (through the 7-35/34/32 species), while in the second verse the 'atonal'-type 4-19/17 genus represents the hot-headed, irrational and ultimately violent attitude of the brother. The setting thus conveys a sense of the opposition (almost as a form of family duty) to the overtures and intentions of the lover, which lie in direct contrast to the reaction of the sister. Thus, the attitude of understanding and sympathy, in which alienation and opposition give way to comradeship and support, is set to a passage in which the motif features representing verses 1 and 2 are integrated, while the α motif-form itself is absent.

Another interesting observation of the way in which the theoretical perspectives underline the imagery in the text is the use of the whole-tone genus to represent potentially female sensuality. Thus the suggestion of a WT genus in Section 1 (which was only able to predominate locally, and failed to exceed the prominence of the G4 genus) anticipates Section 3 where it becomes predominant, in contrast to Section 2 where it forms no part. This use of whole-tone thus offers a potent metaphor for female sensuality. In Section 1, the mother is bound by the obligations of her position as mother and so this representation (the WT genus) fails to predominate: the mother rather turns to prayer, to request for a change in the family fortunes: in a sense an admission of an appreciation of the potential power of the awakened female sensuality. The second verse pertains to the brother, and the WT genus is virtually absent from the texture. The third verse depicts the understanding attitude of the sister, in that she can identify with the narrator: the WT genera predominate in (virtually) all of the genera systems examined, suggesting a metaphor for the solidarity (and indulgence) in awakened female sensuality.

The postlude offers an immediate 'jolt' back to the over-riding difficulty of the situation, with its reassertion of octatonic and augmented triad amid a recall of the α motif that refers back to the openings of Verses 1 and 2.

Chapter 9: Conclusions

The detail of the analyses from all three perspectives has highlighted the depth and multifaceted nature of Schoenberg's notion of coherence. Yet, as the post-structuralists have reminded us, models of unity, to which coherence is linked, are hardly sufficient if they are based on the illustration of relationships that merely substantiate a construction of unity that can only be framed in the positivistic terms that are the poles of the analysis.

The perspectives used in this study (composer's, harmonic and post-tonal) have the potential to be positivistic when used analytically on their own. In juxtaposing the three perspectives, the twelve three-part analyses have given them a context, by offering a view of Schoenberg-the-theorist (through the Schoenbergian motivic and regional analyses) alongside a view of how Schoenberg's music relates to pc-set theory, and the genera of pc-sets. In one sense, this has presented a degree of confrontation between the coherence proffered by Schoenbergian theory (in which the two separate perspectives are brought together not only through their basis in Schoenberg's writings, but also through their common objective in preserving coherence, a link that will form part of the discussion below) and the more dynamic structure suggested by the analyses of pc-set genera.

The central argument of the conclusions presented here is to scrutinise the detail of the analyses in order to identify the common threads, and indeed offer an interpretation of how the sum of the analyses in the context of the perspectives can be regarded as meaningful. One of the themes presented here is that of the interdependence of the three perspectives, none of which could be claimed to offer a sufficient analysis on its own. This notion of interdependence between the three is perhaps epitomised by the opening theme of *Mädchenlied.* The opening motif can be regarded as a projection of the underlying harmony: the sonority E-D♯-G-B represents the pitch-classes of the opening motif as well as the opening harmony, and the analytical descriptions of both parameters have proceeded on these grounds. As a harmonic entity it represents what Schoenberg himself describes as a 'tonic seventh chord', which asserts the overall tonality of E minor; yet the dissonant element which Schoenberg's classification seeks to integrate, D♯, also anticipates the region of the flat mediant which dominates Section 1, and (as described in the detail of the analysis) illustrates a form of coherence with which Schoenberg's writings concur.[1] The opening motif also contains the three-note motivic features 'x' and 'y', the developing variations of which underpin the motivic fabric of the composition. Finally, when this opening

1. See Schoenberg 1978: 365.

sonority is examined as an unordered, independent set of notes, that is, as pc-set 4-19, its influence is pervasive (expanding to the signature set 6-Z19) and finds prominence in Section 2. Each of the three perspectives offers a distinctive model for the work, none of which could be deemed sufficient on its own - after all, the pc-set analysis is incapable of describing how the chord progressions link together, a factor which the chordal analysis suggests plays an important part in the work's structure. Yet the chordal analysis, too, is insufficient as it cannot describe how, for example, the unordered set 4-19 forms part of 6-Z19. The case of *Mädchenlied* thus illustrates the importance of all three parameters in analysing the transitional works sufficiently. Each offers a separate context that must be taken into account in order to provide an overall interpretation.

The following three sections will discuss and summarise how the analyses have furthered the aims of the three perspectives in detail. They precede a final summary of how the *Lieder* which have formed the subject of the study have been illuminated by these perspectives.

9.1 *The composer's perspective*

The nature of the coherence that Schoenberg described has been illustrated, albeit in a very direct manner, by the depictions of variation, developing variation and *Grundgestalt* that have been offered in the motivic analyses. The analyses demonstrate that, in every case, a *Grundgestalt* can be identified, from which a form of motivic connection between it and the complete thematic/motivic content of the work can be adduced. Moreover, they also support the contention that such connection is indeed governed by repetition, variation or developing variation as suggested in *FMC*.[2]

9.1.1 Variation and developing variation

Perhaps the most important distinction to emerge from these analyses is that between variation and developing variation. In this way, the theme-based motifs which might be regarded as '*leitmotivic*', that articulate the sectional structure of, for example, *Voll jener Süße* and *Wenn Vöglein klagen*, confront the two- and three-note motivic cells that underpin the structure of *Sehnsucht* and *Alles*. In the former, motivic features common to distinct motif-forms can invariably be found, while in the latter it is difficult to find recurring motifs which are larger in scale. Somewhere between these two treatments of motif, works like *Natur*, *Nie ward ich* and

2. See Schoenberg 1967: 9. The issue has been discussed in Chapter 2.

Verlassen are comprised of motifs which are established through repetition and sequence, yet can be shown to reveal characteristics that allow the formation of new motifs or themes.

The distinction was initially identified in one of these works, *Natur*, where a separate example distinguished instances of variation and the sequential repetitions which the motif-forms articulated in the central section, from instances of developing variation (compare Examples 1.1 and 1.2). These two categories (variation and developing variation) are separately represented in the two works which follow. Thus, while *Verlassen* exemplifies thematic variation, with the vast majority of the work's motivic content represented as belonging to one of four motif-forms (although motivic features underpin connectedness between motif-forms), *Traumleben*, which was written at the same time as *Natur*, is more strongly representative of developing variation through its use of the cell-like motivic features identified in Example 2.2. The developing variation process is even more clearly articulated in *Ghasel*, and although its motif-forms are distinctive, an examination of the motivic features and their treatment illustrates the developing variation process.

The polarity between variation and developing variation is particularly interesting in the context of the Petrarch *Lieder*, the contrapuntal orchestral textures of which strongly contrast the more intimate small-scale *Lieder* for piano and voice.[3] The analyses propose that *Nie ward ich* is much more representative of developing variation than the thematic *Voll jener Süße* and *Wenn Vöglein klagen*, in that its motif-forms, though repeated and varied, appear to be constantly evolving to form new forms and are linked by a network of motivic features. This supports, to some extent, Holzer's view that the Petrarch *Lieder*, along with the Quartet whose compositional process they interrupt, represent the turning point at which 'one path is chosen, another renounced'.[4] Although Holzer frames this in terms of a shifting of allegiance from Strauß to Brahms, with particular reference to the programmatic elements of *Pelleas und Melisande* and *Verklärte Nacht*, it is clear that on the technical level which these analyses demonstrate, both elements of sequential repetition alongside (non-developing) variation (which could be aligned with Strauß) and

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3. Holzer proposes that the textural style of the first two Petrarch *Lieder* 'suggests a composer immersed in string quartet writing' - an argument supported by the fact that the composition of the Petrarch *Lieder* interrupts the writing of the first quartet (see Holzer 2000: 80). Although some textures may reflect something of Holzer's observation, such as the opening of each work, the duet for voice and *cor anglais* in *Nie ward ich*, (bars 21-26), the climactic finale of *Nie ward ich* and the climactic central interlude of *Voll jener Süße*, are examples which are strongly suggestive of orchestral writing.

4. Holzer 2000: 81.

developing variation (which is derived from the influence of Brahms) are in evidence, in varying degrees, in the Petrarch *Lieder.*

The motivic analyses of the 1905 *Lieder* draw attention to the further fragmentation of motivic cells which underpins developing variation. In *Sehnsucht,* the motivic cells which generate the perpetually changing melodic line consist of three-note groups, while in *Alles,* the analyses demonstrated that two motif features, the semitonal pair and the semiquaver texture form the basis for the ongoing developing variation that permeates the entire work. Attempts to identify larger-scale thematic motifs in these two works failed. Thematic motifs, however, could be identified in the vocal line of *Am Wegrand,* yet the texture was also comprised of the motivic features which the thematic motifs shared. *Lockung* and *Mädchenlied* provide further evidence of the emergent predominance of developing variation, and although the reiteration of motif-forms articulates the sectional structure of these works, the motivic analyses have traced the on-going transformations of motifs through the use of common motif features.

Developing variation has thus been illustrated as a process in which motifs undergo a series of changes in order to establish distinct motifs or motif-forms, brought into focus by the (often minimal) elements they hold in common. These elements (the identifiable motivic features) are indeed characteristic of the developing variation process, and have significant ramifications in Schoenberg's atonal period.[5]

9.1.2 *Grundgestalt*

In the absence of a sufficient definition by Schoenberg himself, Chapter 2 argued the case for adopting a freely-formed conception of the term *Grundgestalt,* on the basis of Schoenberg's various fragmentary references to it, along with those of his pupils. Thus, the *Grundgestalten* were identified in the analyses by relating the motivic features that the analyses reveal to the *Gestalten* formed in the first few bars of each work. In this way, the study offers a view of *Grundgestalt* based on the circumstances of each separate case, rather than seeking to construct a categorical definition as has been observed in other studies, such as that of Collisson.

It is thus appropriate here to draw together some of the factors through which the *Grundgestalten* have been established in the Opp. 6 and 8 *Lieder.* In an important sense, the *Grundgestalt* as

5. See, for example, Simms 2000: 97, where he identifies in *Erwartung* Op 17, a technique whereby Schoenberg bases larger motif-forms on small motivic particles.

referred to by Schoenberg is a given constant: it remains a *Gestalt* which appears at or near the beginning of the work. Any analytical strategy is less concerned with identifying the *Grundgestalt* in these terms, than with determining how the opening phrase might be presented through variation and developing variation, as the basis from which the remaining motivic (or in some cases harmonic) content can be derived. In this way, the *Grundgestalt* is inextricably linked with the process of variation and/or developing variation. If the work itself is deemed to be oriented towards repetition and variation in terms of its manipulation of motif (as might be said of *Voll jener Süße*, *Wenn Vöglein klagen*, or even *Natur*) rather than towards developing variation, then the relationship between *Grundgestalt* and motivic content will be based on the differences between motif-forms (as represented in the analyses by Greek letters). If, on the other hand, the work is based more conclusively on developing variation (such as in the case of *Alles* or *Sehnsucht*) then its *Grundgestalt* should encapsulate the cellular motif features (as represented in the analyses by lower-case Roman letters) that underpin the motivic content. As in the former case the relationship between 'motif-forms' was identified in terms of common motivic-features, the necessary conditions for the convincing *Grundgestalt* are determined by the degree to which it contains and presents the motif features.

The analyses have thus illustrated that the motivic cells (or motif features) which Schoenberg uses in his own analyses form the basis of not only developing variation but also the *Grundgestalt*, and as such can be regarded as key building blocks on which Schoenberg constructs his theory of form.

9.2 *The harmonic perspective*

The use of Roman numerals to identify (or at least support the case for) an underlying regional structure within these works may perhaps have seemed a conservative and potentially unfruitful strategy. Nevertheless, it is clear, as was argued in the introduction, that work matching Schoenberg as theorist with Schoenberg as composer has been neglected to date, despite the on-going publication of Schoenberg's unfinished theoretical manuscripts and glosses.[6] Moreover, the Roman numerals, with the use of the 'strikeout' character-effect to indicate transformation, have offered a degree of flexibility that allows the analysis to depict a harmonic style which, for

6. For example, Schoenberg 1994 and Schoenberg 1995. As noted before, the healthy secondary literature which discusses and supplements these works (such as Simms 1998, Neff 1999, Carpenter 1997 and the introductions and commentaries of the above mentioned primary sources) has, to date, failed to relate such observations to Schoenberg's music.

example, a Schenkerian graph, with its focus on the dominant and its relationship with strict counterpoint, would have failed to identify. The obvious advantage of this approach is that it is the style used by Schoenberg to discuss and teach harmony in *SFH*, thus enabling Schoenberg as theorist to confront Schoenberg as composer. The analyses have thus illustrated that he is consistent in his approach (his compositions exemplify his analytical approach, while his theoretical grasp of harmony is well illustrated by his works) and this in itself confronts the argument that the underlying theoretical method of vertical classification be deemed too positivistic.

Nevertheless, there is significantly more analytical insight to be gleaned from these examinations than the mere illustration of this consistency. Therefore, the objective of the following section is to draw together some of the common threads that have emerged from harmonic analyses 'in the style of *SFH*', with a view to revealing aspects of Schoenberg's harmonic style that might not be obvious from a more isolated examination of a single work, thus addressing some of the criticisms that could be levelled at such a strategy. One of the most interesting factors to emerge is that aspects of his harmonic style strongly concur with (and perhaps even exemplify) the notions of coherence, motif and even the *Grundgestalt* which underpin the motivic analyses discussed above, in a very direct manner.

9.2.1 The positivity of the theory of regions

Chapter 4 identified a significant problem raised by Schoenberg's theory of regions, in that its underlying positivity, whereby virtually any region (and, by extension, any chord) can be linked to any other, potentially undermines its analytical usefulness. That is, given the unlimited possible extensions to a given tonality (epitomised by the chart of the regions), what are the factors that appear to constrain Schoenberg's compositional choice? The analyses, in identifying characteristics of the harmonic process, pose some useful answers to this problem.

9.2.1.1 Characteristics of monotonality: secondary dominants

The analyses have confirmed not only that when the harmony moves from the overall tonic towards a region, this region is confirmed through its own dominant chord (as one might expect – hence the 'transformations'), but also that the overall tonality is not necessarily charactersied by its own dominant, but, rather, expressed through the regions' intrinsic relation to the tonic (i.e. as expressed in the 'chart of the regions' discussed in Chapter 4). In this way, the regions become scale degrees (or *Stufen*) that represent the intransigent poles around which the harmony unfolds. The regions therefore mediate between the tonic and the remote harmonies.

This is more apparent in the earlier *Lieder* up to and including the Petrarch songs, where the regions are distinguished from the overall tonic by virtue of the fact that the former are defined by their dominants, whereas in the case of the latter its dominant appears to be avoided, with chromatic progressions from alternative degrees frequently preferred. For example, in *Nie ward ich*, where the overall tonality is less frequently articulated than its regions, the various regions feature assertions of their own dominant-seventh chords, (such as that of Np [bars 7-8 and 10-11] or ♭M [bars 20-21], or sd throughout, while even the D region is marked by the assertion of its dominant in bars 41); yet the dominant-seventh of F is largely avoided, and in passages such as in Section 3, where the tonic region prevails, the dominant chord is always altered in some form. Even the final cadence comprises an altered dominant. In this way the secondary dominants (the dominant-sevenths of the regions of *Nie ward ich*) articulate the *Stufen* of the overall tonic. Comments in this regard were also made in the analyses of *Natur* and *Voll jener Süße*.

Of course, there are some instances of strong dominants which move to the tonic, such as at the opening of *Traumleben*, where E major is asserted by a very strong dominant-seventh, yet even here this proves to be the exception to the rule, and in none of the other cadences to E major is there any sign of an approach from the dominant, whereas the Neapolitan region is frequently articulated by its dominant chords. A similar situation can be found in *Wenn Vöglein klagen*, where the introduction concludes with an F♯ chord that heralds an opening section emphasising the B minor tonic of the work. Yet, elsewhere, it is difficult to find a strong assertion of the tonic's dominant, and even the final cadence finds the dominant somewhat altered.

It is interesting, therefore, to find a stronger and more frequent assertion of the dominant chords of the overall tonality in the 1905 *Lieder* – see, for example, the extended assertion of dominant harmony that precedes the tonic at the end of *Mädchenlied* (bars 24-26), or the extended assertion of dominant in *Lockung* (in places like bars 20-22), or the recurrences of E♭ chords in *Alles*. This is not to suggest that the regions play less of a role in the harmonic structure of these works, as the regional variety and clarity of works like *Am Wegrand* and *Mädchenlied* draw on several regions, all of which are defined by their dominants (which, as in the earlier works, constitute the secondary dominants of the overall tonics), but rather that Schoenberg's approach to region and tonal centre and their means of articulation is more uniform.

The issue of the status of the dominant of the overall tonic can be approached by examining the role of the dominant chords in the final cadences in these works. In the earlier works, such as *Natur* and *Traumleben*, the dominant chord is avoided in the final cadences with the final tonic approached by Neapolitan-based figures. In *Verlassen*, *Ghasel*, *Nie ward ich* and *Wenn Vöglein klagen*, the final tonics are approached by figures which include a dominant chord, but the status of these could hardly be labelled anything more than a token gesture in the direction of tradition. The final cadences of *Voll jener Süße*, *Sehnsucht* and *Alles* are effected by unique progressions which avoid making any use of the dominant chord, yet in the three final works one can identify an extended dominant-seventh chord leading to the tonic of the work. On each occasion this progression can be identified in the harmony that sets the final phrase of the vocal part. In *Am Wegrand* and *Mädchenlied* (bars 33-35 and 24-26 respectively) the dominant function emerges through a whole-tone passage, whereas, in *Lockung* (bars 58-59), the dominant itself is sustained for a relatively short time, and the figure of which it forms part is strongly cadential in the traditional sense. Thus, these later works share a structural emphasis with those of the eighteenth and nineteenth century tradition,[7] which the earlier works appear to seek to dismiss.

This corresponds with the findings of the generic analysis below, that the extended diatonic genus emerges as an important genus in these late 1905 *Lieder*, and confronts the view that as a whole, Opp. 6 and 8 form a succession of works that depict a progressive disintegration of tonality. It is clear that the last three *Lieder* suggest a degree of reversion back to a comparatively conservative harmonic style. This discussion emphasises that, viewed as a whole, Schoenberg's approach to the role of the dominant in defining region and tonality is experimental.

9.2.1.2 The 'coherence' of Schoenberg's harmonic structure in the transitional Lieder.

The tables in Example 13.1 (in Vol. 2) list the main regions which have been articulated in each of the works studied, using the classifications defined by Schoenberg. The final column shows how these regions have been referred to in some form in the initial section (often indeed in the initial *Grundgestalt*) of each work. These references take the form of the melodic association of relevant notes, transformations of chords and vagrants which reflect the characteristics or properties of the prospective region, and chords in which an unusual context suggests an alternative regional

7. This structural emphasis is, of course, one of the important features that Schenkerian theory identifies and on which it focuses. This is not to suggest that these works would be conducive to Schenkerian analysis, but rather that they exhibit one particular characteristic which they share with works from the tonal tradition.

association. Thus, the table supports the argument that Schoenberg anticipates each region used in the work in the opening section, underlining his organicist approach to harmonic coherence.

The theoretical sources for this can be traced through his pedagogical description and justification of modulation in *HL*, in which he describes how the 'sovereignty of the tonic must be placed in danger of being lost' because of the natural tendencies of the subdominant and dominant regions to influence chords which they share with the tonic region.[8] Likewise, in these works, one can find in the openings traces of the influence of the (yet to be realised) regions that predominate in later sections (regions which extend the boundaries of tonal process well beyond the 'influences of the dominant and subdominant' that are described in the pedagogical *HL*). The touching point between the works studied here and *HL* is that both the tonic region (in an extended tonality) and the (increasingly remote) regions themselves share these elements or regional properties: i.e. these elements are indicative of the regions that dominate parts of the structure of the work. In *HL* this is expressed in terms of tonic, dominant and subdominant (i.e. a non-extended tonality), whereas in Opp. 6 and 8, the demonstrations show that they fall within the overall range of extended tonality.

It also illustrates Schoenberg's holistic approach to harmony, showing how an extended tonality as an aggregation of regional infrastructure is presented at the opening of each work: the background level suggested by the work's regions allows for the juxtapositioning of the resultant aggregation of (otherwise discrete) harmonic elements. But, perhaps most importantly for the critics of the Roman numeral technique, it is also suggestive of the way in which Schoenberg controls extended harmony: it is thus revealed as not the unlimited, and potentially uncontrolled, proliferation of secondary dominants that suggest any chord may progress to any other;[9] rather, it suggests that the seeds for the boundaries of regional infrastructure in a given work are properly sewn at the outset, frequently within the confines of the work's *Grundgestalt.*

Finally, these observations point to a new formulation of the interaction between the domains of harmony and motif. Straus depicts the distinction between the two as a necessary condition for prolongation, which he implies is itself part of the process of tonal music (as distinct from atonal

8. See Chapter IX, 'Modulation' from *HL* (Schoenberg 1978: 150-151).

9. As was suggested by, for example, Haimo. See the earlier discussion (Chapter 1: 18).

music, for which he deems 'association' to be a more appropriate characterisation).[10] Schoenberg's coherence, and its representation in the motivic and harmonic analyses presented here, perhaps serve to blur this distinction, underlining why prolongation cannot be easily encapsulated in this repertoire. This is because the harmonic characteristics become motivic in function, while motivic elements have a clear harmonic function in that they form part of an extended tonality which is based upon aggregation, as illustrated in detail throughout these analyses.

Aggregation is thus the key concept which distinguishes harmonic process (in terms of regional articulation) within Schoenberg's theory from the prolongation which underpins that of Schenker. It supports, and indeed illustrates, the contention in Chapter 3 that Schoenberg's model, illustrated by his analysis of *Lockung*, is built on aggregation and the membership of a region. This is fundamentally different from prolongation, which encapsulates a process of interaction between the notes which 'do the prolonging' and the 'thing' which is prolonged. Prolongation only exists where the 'thing' prolonged is not present.[11]

9.3 *The post-tonal perspective*

Although the *Lieder* examined in this study predate the period during which Schoenberg's atonal works were written, there is considerable precedent for adopting pc-set theory to analyse works from Schoenberg's late tonal period. Not only have pc-set relations formed the basis of some of the published studies,[12] but it is clear from the analyses provided here that such relations underpin many of the connections between phrases, sections, and – in some cases – works. Moreover, the examination of pc-set genera has brought into the purview of pc-set theory the idea that pc-sets can be equally representative of diatonic harmonic species and of non-diatonic harmonic species, offering a means of structuring such observations in a form that allows direct comparison of the underlying theoretical constructs. This is not to suggest that genera theory renders pc-set theory suitable for all contexts, but rather that in the case of these transitional works, it offers a

10. See Straus 1987 (which was cited earlier with respect to other characteristics of prolongation). Although Straus concedes the exceptions presented by Larson (see Straus 1997a), the potency of his original formulation of conditions (and specifically the vertical-horizontal condition) remains intact.

11. Recall that this point and its source in Straus 1987 was discussed earlier (Chapter 3: 59).

12. Set relations form the focus of Forte's study of the Op. 6 *Lieder* (Forte 1978a) and are referred to in a recent survey by Street (Street 2000).

particularly useful line of enquiry. The following section will examine the degree to which the Opp. 6 and 8 *Lieder* have exhibited pc-set relations, while the subsequent section will provide a context for these observations by examining how the pc-set genera profiles depict these works. A final section will focus on the key genera themselves.

9.3.1 The pc-set relations of Opp. 6 and 8

In all the recently published glosses, articles and sketches, there is a conspicuous absence of material that suggests that Schoenberg was actively pursuing a notion of what we now understand as a pc-set, that is the unordered set of unique notes (or pitch-classes) which underpin a musical segment. The fact that his writings offer little evidence of his development of a notion of 'set-consciousness', however, does not necessarily mean that he did not intuit or even contemplate the idea. Forte's contention in respect of Op. 6, discussed in Chapter 4, is supported in the more general case by Ayrey's rhetorical question, 'how much of *The Structure of Atonal Music* would Schoenberg have disagreed with?'.[13] The evidence of the analyses offered here also supports Forte's contention that set-consciousness plays a role in sustaining relationships between unordered groups of pitch-classes.

At the outset of the works studied here, the α motif of *Natur* exhibits the twelve-tone operations inversion, and at times retrograde-inversion. The fact that the dovetailed instances of α span the chromatic hexad suggests some form of intervallic manipulation. Moreover, looking into the detail, we find instances, such as the return of the α motif in the third subsection of Section 1 (bars 23-25 – see Example 1.3, System iii), in which the interval pattern of the original differs while the pc-set of the two remains constant (set 4-2), illustrating a level of coherence that transcends the retaining of the rhythmic motivic feature that otherwise might be cited. *Traumleben* offers significantly greater evidence of set-consciousness (as opposed to the inversion and retrograde-inversion operations applied to motif α cited in respect of *Natur*) on several counts. The verticalisation of the opening melody (represented by pc-set 7-26) at the point of its recapitulation represents a particularly potent pc-set relationship,[14] supplemented by its double

13. Ayrey 1998: 163.

14. Recall that this observation expands Cone's original 'characteristic sonority', which essentially represents a form of set-consciousness that is pitch-class-specific. Forte's original article, with its focus on the signature set, also provides evidence of pitch-class-specific relationships between untransposed pc-sets. In view of other such relations (see, for example, the discussion of the introduction to *Sehnsucht*, or the influence of the opening of *Wenn Vöglein klagen* on the regional

recurrence in the melodic line of bars 26-31 in a distinct form to the *Gestalt* of the opening. In support of this correspondence, one can point to the way in which motivic feature 'x', which recurs through the short link passages (bars 4, 9, 25, 31), combines with its triadic harmony to produce set 5-Z38. The central interlude, where 'x' is less obviously present, comprises two central chords (bars 19-20) which combine to produce set 5-Z38. Further instances of this set can also be found in prominent places in *Verlassen* and *Ghasel*, as shown in Diagram 9.1 below.

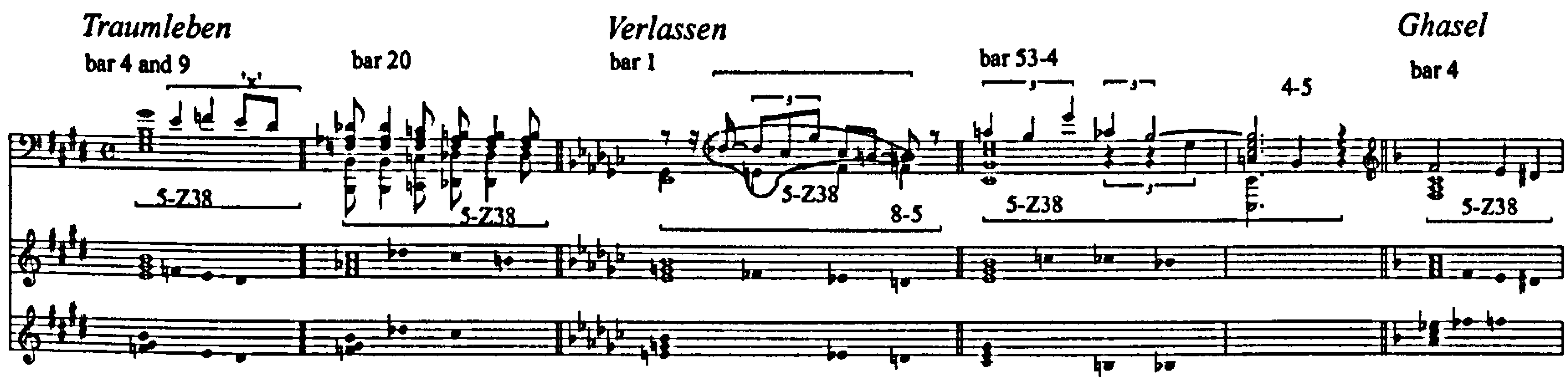

Diagram 9.1: Instances of pc-set 5-Z38

Both the 'x' motivic feature of *Traumleben* and the α motif of *Verlassen* are based around the semitonal ornamentation of a triadic figure. The first stave under the quotations indicates how the five pitch-classes relate to the major or minor triads which accompany them, while the second organises the pitch-class content to emphasise the similarity that pc-set theory identifies. The graph thus attempts to trace the process through which set-consciousness might have evolved.

Set relations were identified as an important part of the motivic and harmonic fabric of *Verlassen*, not just through the contribution they make to the process of developing variation and the interaction of melody and harmony, both of which underpin coherence, but also through the numerous complementation relationships which were identified between segments in close proximity to each other. These observations indicate further evidence supporting the view that set-consciousness plays a role in the pitch-class organisation of these early *Lieder*.

On the other hand, while the segmentation of *Ghasel* also revealed some pc-set relationships, they amounted to considerably fewer than found in the earlier works, particularly *Verlassen*. The analysis proposed two factors that could be regarded as counterbalancing this apparent deficiency: firstly, the consistency of transposition operations which connects motif-forms (identified in

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structure of its entirety), a case can be made for regarding 'set-consciousness' to have evolved from a pitch-class-specific form.

Example 4.3); and secondly, the comprehensive and extensive use of developing variations (as shown in Example 4.1). Both *Verlassen* and *Ghasel*, therefore, might be regarded as experimental in that the less sophisticated motivic variations (as opposed to developing variations) in the former are underpinned by a predominance of set relations, whereas, in the latter, developing variation could be traced, yet the pc-set relationships are more scarce.

Although pc-set relationships underpin a number of connections between motifs in the Petrarch *Lieder* (for example, the pc-set relationship between the δ and Σ motifs in Section 2 of *Nie ward ich*, or the iterations of 5-Z17 that can be found in the introduction of *Wenn Vöglein klagen* that resurface elsewhere) the harmonic and contrapuntal textures are ultimately too complex to identify comprehensive networks of pc-set relationships, and the segmentations are more usefully deployed to provide generic profiles of the inherent harmonic species.

Of the 1905 *Lieder*, both *Sehnsucht* and *Alles* are particularly conducive to pc-set analysis and convey a strong sense of the set-consciousness that is in evidence in the earlier *Lieder*. In *Sehnsucht* the discussion of pc-sets focused on set 6-Z19, its context as part of the harmonic minor scale, its association with the ostinato figure, and its occasional juxtapositioning with the octatonic hexadal set 6-Z13. These two sets and their complements feature in *Alles* as well, and their similarity in terms of their internal structure (i.e. that they comprise three pairs of semitones) identifies a key motivic feature of its melodic content, as discussed in the motivic analysis. Yet the pc-set analysis of *Alles* depicts the greatest number of pc-set relations (suggesting a particularly homogenous pc-set structure) of all the *Lieder* in the study, and is distinguished by numerous hexadal connections, not the least of which is the manipulation of signature set 6-Z44 (complement to 6-Z19) in the final bar, recalling the opening vocal phrase.

The prominence of 6-Z19 is a frequent melodic feature of all of the 1905 *Lieder* examined here, and the key instances have been summarised by Example 13.2 (in Vol. 2), together with some of the more prominent instances in earlier works, although with the exception of that of *Verlassen* it is clear that these are more transitory instances. Forte has argued that these be supplemented by the pc-set of its complement, 6-Z44, which can also be found frequently within these works.[15] The importance that one should attach to such consistency, given that set 6-Z19 emerges as a subset of the harmonic minor scale (i.e. the seven notes of the scale minus the subdominant) will become a focus in the discussions of pc-set genera below.

15. See Forte 1978a. This article has been discussed earlier (Chapter 4: 75).

Of the other 1905 *Lieder* examined here, *Mädchenlied* exhibits a number of internal pc-set relationships between segments, whereas *Am Wegrand* and *Lockung* are less strongly characterised by the types of internal pc-set relationships that were found in, for example, *Verlassen* or *Alles*. Nevertheless, examining all five 1905 *Lieder*, one finds that a number of reiterated sets emerge, and the following table lists the sets which recur prominently in at least three of the *Lieder* (see Table 9.1 below).

Set	*Alles*	*Mädchenlied*	*Am Wegrand*	*Lockung*	*Sehnsucht*
4-12	1	1	2	4	
4-17	2	1		2	1
4-19	4	6	3	2	3
4-Z29	2	1	7	2	
5-20	2	1	4		2
5-4	1		1	1	1
5-5	2		2	2	
5-Z12	3	1	2	1	
5-Z18	2	1	1	3	1
6-14	1	1	3	2	1
6-15	2	1		2	
6-16	5		2		
6-2	2	2		2	
6-22	1	2	1	1	
6-27	1	1	3	3	
6-Z10	2	1	1		
6-Z19	2	2	3	2	6
6-Z23		2	2	2	
6-Z44	4			1	1
7-21	2			1	1
7-26		1		1	3
7-31		1	1		2
7-32	6	1	2	2	3
7-34	3	1	2		1
7-35	1	1		1	1
8-17	1	1	1		2

Table 9.1: Set recurrences in the 1905 *Lieder*

It seems that these kinds of relationships transcend mere coincidence, and although it would seem unlikely that Schoenberg planned all such structures, it is surely likely that he was conscious of some of the more simple structures - such as the tetradal sets 4-17 (with its major/minor triad structure) and 4-19 (with its major triad/augmented triad structure), the sets of the major and minor scales (7-32, 7-34, 7-35), and the octatonic structures like 7-31. Whether the signature sets were planned is difficult to determine, yet in *Sehnsucht* the consistent iterations of 6-Z19 suggest some form of awareness, as does its prominence suggested by Example 13.2, while, in *Lockung*, Schoenberg appears to make a special modification to the final semiquaver figure in order to produce set 6-Z44. These observations, however, require a context in which their significance can be assessed in the light of other such observations. Pc-set genera theory offers a model for this purpose.

9.3.2 Pc-set genera

The key objective of generalising pc-set genera is to combine three distinct existing models of the concept: thus addressing Parks's aim in discovering the genus that represents, if not a 'perfect fit', at least one which offers hits on the majority of sets in the segmentation, while still retaining the capacity to understand the properties of the model (in this case the construction of the genus, or genera), so that its 'positive analogy' may be extended to the analytical object. Forte's notion of the Squo offers genera a measure of the significance of a genus to a segmentation, while his idea of matrix 'reduction' allows for the inevitable pragmatic fact that a reasonable model of a given segmentation is likely to include more than one genus. Kennett's identification of some of the problems posed by Forte's model and his demonstration of the expansion of genera to the inclusion relations of all the pc-sets of a given segmentation (hence his Kd complexes), has informed the generalisation that has been used in this study. The generalised genera therefore combine all three models, by identifying a lowest common denominator in the form of the notion 'genera system'. The study has articulated this not only in theoretical terms but also by means of the tool in the form of the *Set Manager* software that has been included.

After all, Ayrey's argument that [Fortean] genera theory 'constitutes a relational system in Saussure's sense, a "system of differences without positive terms"', was presumably tempered by his findings in respect of Forte's genera where he finds 'the complicity of whole-tone (G2) and augmented (G4) species ... seem awkward using Forte's [system]'. In allowing a user to create his/her own genera *Set Manager* addresses this deficiency and allows for both 'the prior customisation of genera' that Parks seeks and Forte's 'vision of harmonic styles emerging from a theoretically-determined universe',[16] in a manner in which both models can be directly compared.

Genera theory involves direct engagement with the notes of a given section or segment of a work, presenting these in terms of a comparison of a set of genera. In this way, the genera offer a context for pc-set theory that, to some degree, removes some of the latter's tendency to present its analytical output as a positivistic exercise. The association of given segments with distinct genera, which in turn potentially represent constructs for which an intuition already exists (such as

16. Ayrey 1998: 175.

diatonic, chromatic etc), allow for a form of substantiation of such intuitions which would otherwise be unavailable.

The analyses which have been presented here offer three examples of the usefulness of generic theory. Firstly, they suggest a system of comparisons of genera performance (genera representing theoretical constructs) within the works themselves. Secondly, they offer the opportunity of tracing specific theoretical constructs (represented as genera) through a whole set of works (in this case the Schoenberg *Lieder* Opp. 6 and 8) which, after all, is constrained in its representation in terms of a fixed genre (*Lieder*) and a limited compositional period (December 1903-November 1905). Finally, they offer the means by which pc-set theory can be tested within itself, and issues such as the appropriateness of other genera, the consistency of the theory, and the appropriate strategies can be examined.

9.3.3 Genera theory and the interpretation of the *Lieder*

The way in which the generic profile of a *Lied* progresses during the span of the work has been a focal point for the summary sections of the genera analysis. A number of the interpretations of the *Lieder* included data gleaned from generic profiles, or from the process by which the profiles moved from one genus to another (illustrating how generic profiling is effectively invoking the comparison of theoretical constructs – a 'system of differences').

Looking at the main genera only (i.e. those which are noted in the far left hand columns in the tables), the following table (Table 9.2) shows the successions of key genera (in general, section by section) of each of the nine *Lieder* in which generic analysis spanned the entire work.

Work	Process	Category number
Natur	diatonic → chromatic → signature	1
Traumleben	diatonic → octatonic → chromatic → signature	1
Ghasel	chroma → diatonic → chromatic → atonal	1
Verlassen	diminished-seventh	2
Sehnsucht	octatonic/extended diatonic	2
Alles	signature	2
Am Wegrand	chromatic	2
Lockung	extended diatonic	3
Mädchenlied	G4 (Fortean augmented genus)	3

Table 9.2: Successions of key genera

It is interesting to note three distinct, general schemata, two of which group works that have been composed in close proximity to each other. The first category, indicated by the '1' in the third column of Table 9.2, which consists of *Natur*, *Traumleben* and *Ghasel* (all of which were written in the period December 1903-March 1904) is marked by the variety of main genera types, suggesting a very mixed generic profile. Moreover, there appears to be a process whereby the genera representing traditional constructs (such as the diatonic genera) move towards genera which are more representative of atonal harmonic species in terms of their constitution. The process is at its clearest in *Natur* where the three sections are unequivocally delineated by diatonic, chromatic and atonal genera. But the same schema can be found in *Traumleben* (except that the octatonic genus intervenes between diatonic and chromatic sections), while in *Ghasel*, Section 1 wavers between the chromatic and diminished-seventh genera, before the cycle 'diatonic (in Sections 2-3), chromatic (Section 4) and atonal (Section 5-6)' begins.

This classification supports the argument that a particular structural design can be attributed to Schoenberg's style in the three months December 1903–January 1904, in which the distinctive and contrasting nature of the harmonic species which underpins the pitch organisation of these works is used to articulate sectional structure. The poems each work sets are perhaps not easily classified in a single category, although *Ghasel* and *Natur* are both imbued with the theme of organicism, while *Traumleben* and *Ghasel* are both essentially love poems.

In the second category, a single genus dominates the setting – although other genera may play a role in the local context of a section, there is a single genus which predominates throughout the *Lied*. The *Lieder* which mark this category include *Verlassen* (dominated by the diminished-seventh genus), *Alles* (dominated by the signature genus), *Sehnsucht* (dominated by the octatonic genus)[17] and *Am Wegrand* (dominated by the various chromatic genera).[18] Although these *Lieder* fall within the middle period of this study, this observation is undermined to some degree by the fact that a number of other compositions intervened between the composition of *Verlassen* and *Alles* (including the Petrarch *Lieder*, none of which appear to be imbued with a singularity of pc-

17. *Sehnsucht* is perhaps the most difficult of the works to classify in respect of these categories. The matrix of the entire work is not dominated by the octatonic genus – rather it is the extended diatonic genus (7-35/34/32) which is in first position, with the octatonic genus in third place. One might claim that this is the genus which extends throughout, as it is prevalent as a supporting genus in each of the sections of the work. In the other three *Lieder* classified in this group, the matrix of the entire work (see Example 13.1 in Vol. 2) agrees with the singular view offered by the consideration of the parts that is used here.

18. *Mädchenlied* might also be regarded as belonging to this category through the G4 augmented genus which dominates throughout, yet it has some other qualities which place it more obviously in the third category.

set genera within the sections examined). Nevertheless, the texts of three of the *Lieder* in this category are dominated by a singularity of mood and situation, in which the state of mind of the narrator does not undergo any process of change: the negative gloom and depression of *Verlassen* and the isolationism and despair of *Am Wegrand* are perhaps obvious examples of the use of harmonic species to convey a singularity of mood and psychological state of mind. In the third, *Sehnsucht*, the pervasive theme of searching for lost love also indicates a singularity of purpose in terms of the theme of the poem. In *Alles*, the case for the singularity of theme evoking a single harmonic species in Schoenberg's setting, is less convincing. The tone of the poem is, on the surface, much more positive, yet the sense of mystery and tender nostalgia through which the narrator addresses his child could also to some degree be regarded as suggestive of a singularity of purpose.

The third category is characterised by swift movement between genus types, and the narrative characters of the poems of *Lockung* and *Mädchenlied* (which were set within two days of each other) offer a clear example of how changes in genera (as opposed to the actual genus itself) can mirror the unfolding of a narrative. Both include a single genus which, while not necessarily predominant, is present throughout: in the case of *Lockung* it is the 7-35/34/32 extended diatonic; while in the case of *Mädchenlied*, it is the Fortean 'augmented' genus, G4. Yet they are also characterised by sections which involve swift generic change, often with dramatic expressive effect, such as Section 1 and, to a lesser degree, Section 4 of *Lockung*,[19] and the succession of hexatonic and octatonic at the conclusion of the second section in *Mädchenlied*. Moreover, both conclude with genera of a neutral or diatonic type (in a sense reversing the overall process suggested by Category 1). One might identify the origins of this practice in *Voll jener Süße*, where the highly integrated motivic structure of the introduction and first section suggested quick successions of genera.

These categories suggest that the generic profiles of the sectional structures identify distinct changes in the way in which the harmonic characters are structured during the period which these analyses cover. The earlier works are marked by a clear process whereby diatonic-type species move towards more atonal-type species (via the chromatic genus or octatonic-plus-chromatic genera), amid an internal structure where the singularity of the genera articulates sections. The middle-period works, beginning with *Verlassen*, suggest a singularity of generic

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19. In Section 1, diminished, whole-tone, diatonic and octatonic genera follow each other in quick succession.

profile through the entire span of the work, while in the final two works some degree of stability is still present, but the segmentations reveal very swift generic changes in the underlying pc-sets. Moreover, in tandem with this process, there appears to be a form of metaphoric function in the way the harmonic species assists the depiction of the text which the *Lieder* set, especially between the singularity of mood represented by the Category 2 works and the narrative-type verse represented by Category 3.

Examples 13.3 and 13.4 in Vol. 2 show the complete matrix of each work as depicted by the distinct genera systems. In many ways this example confirms the results of Table 9.2, especially given that the profiles of *Verlassen, Alles* and *Am Wegrand* tend to focus on a single genus The representation of *Sehnsucht*, in terms of a predominating extended diatonic genus (the 7-35/34/32 genus) reflects the consistent support offered by this genus as shown in Fig. 8.4 from Chapter 8.

The pervasiveness of the diatonic-type genera elsewhere is also illuminating. The predominating genera of the third category *Lieder, Lockung* and *Mädchenlied*, in which swift change in generic profile could be identified, are the diatonically-oriented genera G12 and 7-35/34/32, confirming the results of the harmonic analysis, that a diatonic core (albeit an extended tonality) exists at the centre of the pitch structure in these works. In the first category *Lieder*, in which the overall process 'diatonic moving towards atonal' could be discerned as the result of a strong sectional articulation of different genera types, one finds that one of these genera dominates the others in the overall profile. In *Natur*, the diatonicism of the opening prevails over the whole (where the sequence of sections is reflected by the first three places of the PGS profile of the matrix); in *Traumleben*, the octatonic genus predominates,[20] while in *Ghasel*, it is the chromatic genera which predominate in the generic profile of the whole.

Diatonic-type genera (in particular G12) can also be found throughout the three Petrarch *Lieder*.[21] Indeed, the emergence of the 7-35/34/32 genus (the extended diatonic) is underlined by the fact that, in two of the Petrarch *Lieder*, this genus accounts for well over half the sets investigated,

20. Although the Fortean G5 has a marginally higher Squo, the octatonic genus is supported by the high placing gained by the 8-28 K* complex (in the K*/Kd genus system) and by the first position accorded the IC3 genus in the Parks IV system.

21. This is perhaps debatable in respect of *Voll jener Süße*, where in the overall view, the Fortean system outperforms the PGS, and G4, G6 and G3 out-perform G12. Yet, taking into account the difficulties in assigning too much importance to a predominating G4, discussed earlier, and the fact that within the individual sections the various diatonic genera predominate, there is considerable support for the contention that of the sections examined – *Voll jener Süße* too is dominated by diatonic genera.

while in the other it hits on almost half.[22] This underlines the fact that the harmonic complexity referred to in respect of the harmonic perspective is still encased in a harmonic species that is diatonic at its core. It also points to a consistency of style that extends through the seven-month period during which these *Lieder* were composed that extends to *Sehnsucht*. The other point to emerge is that the diatonicism at the core of the Petrarch *Lieder* underpins an overall predominance of diatonic genera throughout the Op. 8 *Orchesterlieder*.[23] *Natur* is dominated by G12, while in *Sehnsucht*, despite the strength of the octatonic genus, it is the 7-35/34/32 genus which emerges as predominating overall. This may point to an emergent conservatism in respect of Schoenberg's compositional attitude towards the larger-scale orchestral settings, a view supported by the coherence of harmonic process which the regional model suggests. Certainly, the Petrarch *Lieder* took some time to compose, spanning the period June–December 1904, while the setting of *Natur* extends from December 1903 to March 1904. This contrasts with the more adventurous genera exhibited by the *Lieder* for voice and piano, a texture which lends itself, perhaps, to a more inspirational use of harmonic constructs.

The two *Lieder* for voice and piano, *Ghasel* (January 1904) and *Alles* (September 1905), which chronologically fall on either side of these Orchestral *Lieder*, are notable for the predominance of atonal genera in their generic profiles.[24] The other Op. 6 works (*Verlassen*, and *Am Wegrand*) which are from the second category, and *Traumleben* from the first, were written in close proximity to these, and their overall generic profile exhibits uniqueness (if not singularity) in terms of predominating genus-type.

Overall, the genera of these *Lieder* show, from the viewpoint of the earlier Op. 6, a sense of adventure in terms of harmonic species; adventure that is tagged to the function of expressing the text of the poems each sets. The more serious and ambitious enterprise of composing orchestral *Lieder* was perhaps more conservative, as illustrated by the predominance of the extended diatonic genus. In a sense, the last two *Lieder* written (*Mädchenlied* and *Lockung*) synthesise these two

22. For further discussion of the nature of this genus, in which it is argued that its prevalence represents not just a genus of diatonic scale fragments, but rather stresses the importance of the way it represents combinations of all scales, see below (p. 361). The point here is that its significance, modelled by the summary and detailed generic profiles of these works, emerges with the Petrarch *Lieder*.

23. The possible exception to this is *Das Wappenschild*, which, because its initial composition belongs to an earlier period, a factor reflected by its style, has not been included in this study.

24. *Alles*, in fact, is dominated by the 6-Z19/44 signature genus, which is very similar to the 4-19/17 genus from the PGS which was called 'atonal'.

models, in that while a form of diatonic core can be found within the harmonic species, swift movement between highly idiomatic genera can also be identified.

9.3.4 Theoretical constructs in terms of Opp. 6 and 8

While the focus of the above examination was the *Lieder*, and how parts of their analysis and interpretation might be illuminated by generic theory, the following seeks to identify and examine some of the theoretical components of generic theory, and the way in which they can be traced through the *Lieder* in this study.

9.3.4.1 The octatonic genus

The octatonic genus was included in the PGS following Parks's use of the genus in his examination of the music of Debussy. The Fortean system, after all, has no explicit octatonic genus,[25] and it is clear that, although it is not frequently associated with Schoenberg's music, it is frequently cited in studies of transitional and atonal music. Yet the genera analyses show that in quite a few of these works, the octatonic genus and its symmetrical counterpart, the diminished-seventh genus, predominate. The relationship between the octatonic scale and the diminished-seventh chord is intuitively clear: not only is one the complement of the other, but the octatonic might be represented as two diminished-sevenths joined by a T1 transformation (or even any two diminished-sevenths which have no pitch-classes in common). The relationship between their respective internally-asymmetrical genera is that one comprises the complement of the other. The generic membership of the PGS, which also includes the major scale genus (7-35+) and the extended diatonic genus (7-35/34/32), defines the precise nature of such predominance as a set of differences to the other sets in the genera system. This means that where the octatonic is said to predominate, the aggregation of its articulated components (its pc-set members) is more significant than, for example, the major scale or the extended diatonic genus. Although the octatonic/diminished-seventh genera can be found briefly in *Traumleben*, their overall predominance emerges with *Verlassen* and *Ghasel*. After these works, the sequence of sections in *Sehnsucht* suggests a strong octatonic presence (tempered by the overall context of the 7-35/34/32 genus that dominates the segmentation of the whole work), yet in the later works of Op. 6, they fail to dominate either the generic profile of the complete work or that of the individual sections.

25. Forte, nevertheless, does use G3 to isolate and identify octatonic constructs in the music of Debussy. See Forte 1991.

Alles might be seen as a pivotal work in this respect. As discussed earlier,[26] the seven-note semiquaver figures include some instances of octatonic hexads (such as 6-Z13 in the vocal line in bars 4-5), yet they fail to predominate over the 6-Z19/44 genus. 6-Z13 and 6-Z19, in as much as they represent respectively symmetrical and asymmetrical sets built on pairs of semitones (itself a feature of the motivic analysis), appear to have some degree of affinity with each other, yet it is clearly the asymmetry of the latter which predominates when the pc-set genera are investigated.

9.3.4.2 *The diatonic genera*

The generic analyses allow the question of 'how diatonic the works might be' to be addressed. In the PGS, a number of distinctive diatonic genera are captured by the presence of the Fortean G12 genus, the 7-35/34/32 genus and the 7-35+ genus which was included given its success in Parks's analyses of Debussy. The K*/Kd genera system also allows an assessment of how the genera of the K* complexes of the sets of the three diatonic scales (7-32, 7-34 and 7-35) perform in the context of the genera of all pc-sets.

Aggregating as it does, all the embedding relations of the pc-sets of the diatonic scalar constructs, the 7-35/34/32 genus cannot be regarded as a simple diatonic construct - rather, it separates pc-sets which are related to any of the diatonic scales from those which do not. It is important to note that the 7-35/34/32 genus does not represent a genus based on the 'mixture' of the three diatonic scalar constructs.[27] Rather, it represents pc-sets based on any single scale of the three. Indeed, one cannot find an octadal set which would contain all three sets of the diatonic scales, and from which such a genus could be built. There are indeed two nine-member sets which contain all three scalar sets: 9-7 and 9-11. These two sets could be seen as *de facto* progenitors of the Fortean G12 genus,[28] which in this regard might be seen as representative of a form of refined mixture. The refinement is expressed in terms of the Kh complex and Forte's Genus Formation Rule 2, which constrain the definition of G12. Nevertheless, the fact that G12 is representative of the mixture of the three scalar constructs *to some degree* may account for its prevalence in the

26. See Chapter 8: 297.

27. That is, its members do not represent the pc-sets of the aggregation of the C major and C minor (harmonic and melodic) scale. This was observed when the genus was defined (Chapter 5: 135).

28. Although 9-11 and 9-7 are not described as progenitors in Forte 1988a, one could use the argument that, because Forte's genera are symmetrical in that they comprise exclusively member sets and their complements (Forte 1988a: 192), these two sets should assume the same role in the genus as their complements (sets 3-11 and 3-7), therefore, they could be considered progenitors.

generic profiles of these works in the context of the PGS.[29] 'Mixture'[30] of the scales (and the implied expansion of the underlying pc-sets of the resultant *embedding relations*) can be ascertained more directly by noting the performance of the various octadal sets which represent uniquely the intersections of the various scalar constructs. Table 9.3 shows how these scales are aggregated into octadal supersets.

Mixed scale combination	Pc-sets	Octadal superset
major and harmonic minor scale	7-35 / 7-32	8-26
harmonic and melodic minor scale	7-32 / 7-34	8-27
major and melodic minor scale	7-35 / 7-34	8-22

Table 9.3: The octadal supersets of diatonic scalar combinations

The possibility of the K*/Kd genera of these pc-sets *predominating*, or *offering* a *significantly* higher Squo or number of hits, can be taken into consideration when examining how the pc-set genera of these *Lieder* represent the various diatonic genera that have been collected in the PGS.

It is clear that the 7-35/34/32 genus encapsulates some form of relevant harmonic species, because it is conspicuously absent from the four earlier works in the study, whereas both G12 and its subset, the 7-35+ genus, feature in these works. In fact, the extended diatonic genus cannot be found in either the sectional summaries or in the generic profiles of the complete works (see Example 13.1) until the Petrarch *Lieder*. From that point onwards it appears intermittently throughout. The prevalence of this genus therefore identifies a distinctive harmonic species that Schoenberg has adopted, consciously or otherwise, from the period after the early part of 1904. Its constructive basis in the union of the scalar constructs (rather than the mixture of those constructs) supports the argument that for Schoenberg the expansion of harmonic species was less a case of mixing major and minor than of juxtaposing their separate components in the works, or sections of works, where the 7-35/34/32 genus prevails. The genus represents a significant and hitherto unidentified stage on the path to atonal pitch organisation, in which the harmonic species is based upon the juxtaposition of scalar components with one another. It also points to a degree of conservatism in that one might have expected to find in all these works a higher generic profile for the K*/Kd complexes of the sets that represent mixture.

29. For the sake of clarity, the mixture referred to here enables sets such as 5-Z36 (0, 1, 2, 4, 7) to be included in the G12 genus. Such a set could be regarded as resulting from the mixture of the scales on account of the fact that, in C major/minor for example, it could be formed from the mixture of major and melodic minor scales consisting of the notes E♭, E♮, F, G and B♭.

30. The term 'mixture' is used here in the strict sense defined earlier (Chapter 5: 135).

Although the Fortean G12 genus frequently appears throughout these works,[31] the genera from the other sets suggesting mixture (as shown in Table 9.3) do not appear to excel until the last two *Lieder*, *Lockung* and *Mädchenlied*, where the genus formed by the K* complex of 8-26 (the set of the combined major and harmonic minor scales) is prominent.[32] This illustrates yet another aspect of the close relationship between these two works, and points towards an emergent tendency in terms of the development of the harmonic species. Thus, these songs illustrate three distinct diatonic genera, suggestive of three stages. In the first, suggested by instances of the 7-35+ genus (taken from Parks's work) sets of the major scale tend to perform better than the other diatonic genera, in the second (marked by the Petrarch *Lieder*) the extended diatonic genus emerges, and finally, as shown in the last two works, the K*/Kd genera of the octads which capture the combined scales become prominent.

In terms of Schoenberg's works in the early 1900s, this confirms that distinct diatonic harmonic species underpin pitch-organisation, an observation which accords with ideas of aggregation and transformation that one can find in *HL*, yet it also identifies the stages in the gradual demise of diatonic-type genera. One of their successors is discussed in the following section.

9.3.4.3 The 6-Z19/44 genus

The prominence of set 6–Z19 in the Op. 6 *Lieder* (along with *Sehnsucht*) has been alluded to earlier in respect of Example 13.1. Although the local contexts of the chordal instances in *Sehnsucht*, *Natur* and *Traumleben* can be explained in terms of adjacent triadic harmonies, a more convincing explanation, which appears to diminish the potency of the observation, is that 6-Z19 has embedding relations with the pc-set of the harmonic minor scale (7-32).[33] The issue is illustrated by *Sehnsucht*, where, as a pc-set, it is prominent in the vocal lines, yet the extended diatonic genus dominates the segmentation of the entire work, and features regularly as a supporting genus in the section by section matrices. The conclusion that its key role is its

31. Indeed, it is difficult to ascertain the value of the Fortean G12 genus in this regard, because its genesis is determined by the theoretical model Forte has used to build his 12 genera (the progenitors of which are trichords and trichordal combinations) and, as has been described earlier, its structure is further refined by the complement-based Kh sub-complex. This genesis is in contrast with the pragmatically determined construction of the extended diatonic genus.

32. In *Lockung*, the genus around 8-26 predominates in Section 1 (where it has the highest Squo of all genera considered) and Section 3 (where even though it is not in first place it outperforms the 7-35/34/32 genus). In *Mädchenlied*, it outperforms the 7-35/34/32 genus (as does the genus based on 8-27) in the matrix representing the entire work.

33. The point has been made in passing earlier (p. 352).

contribution to the profile of that genus is supported by the fact that the K*/Kd genus based on 7-32 also features prominently (in both the context of the K*/Kd genera system and by comparing its Squo directly with that of the 7-35/34/32 genus) through the greater part of the work, from the introduction through Section 3. Yet, in Section 4, the signature genus of which 6-Z19 is one of the progenitors, substantially outscores the 7-35/34/32 genus suggesting that set 6-Z19 has gained a degree of independence from its diatonic source.

A similar observation can be made concerning the final section of *Traumleben*, and it is in this context that the pc-set of the final two chords can be regarded as significant in this earlier instance. However, the work in which the signature genus might be said to have 'come of age' is *Alles*, which chronologically follows *Sehnsucht*. In *Alles*, most sections are dominated by the 6-Z19/44 signature genus, while in all sections this genus's performance is superior to that of the 7-35/34/32 genus, a factor which is confirmed by the matrix of the entire work. The genera analysis supports the argument that, in *Alles*, the prominent and recurrent pc-set 6-Z19 has gained full independence from the set of the harmonic minor scale. Its new context is the genus comprising the sets formed by its embedding relations (alongside those of its complement 6-Z44).

These observations trace a harmonic evolution in which segments of the familiar diatonic scales not only become motivic, in that their recurrence as pc-sets underpins prominent melodic lines (as suggested by Example 13.1), but they also break free from their diatonic legacy, in that the other pc-sets that are formed by other groups of notes in the surrounding passage (both melodic and harmonic) aggregate in such a way as to articulate such segments more clearly than they do the sets of the diatonic scales. One might speak of a process of emancipation of the pc-sets which, like 6-Z19, share embedding relations with the diatonic scales, yet feature prominently in the atonal literature.

This strongly supports the case for set-consciousness, in that not only do we find, as presented in Section 9.3.1, that the recurrence of certain pc-sets contribute to structural processes, but also (Section 9.3.3) that, given the context offered by generic theory, examination of pc-set genera identifies an important means by which pitch content is organised into distinct harmonic species throughout a given work, and finally (as argued in the current section) that genera theory identifies distinct stages in the path towards atonality by focusing on the complexes of various sets or groups of sets. Given that set-consciousness represents in essence the awareness on the part of the composer that the unordered set of notes can be used as a means of structuring the pitch or pitch-class content, it is difficult, given the evidence presented here, to imagine how Schoenberg-the-theorist could be unaware of its presence, and signficance. After all, 'coherence', which has been *significantly enhanced by the composer's and harmonic perspectives in the current study*, can surely be expanded to include the idea of the unordered group of notes which pc-sets represent.

Set-consciousness aside, it is clear that the post-tonal perspective has confirmed the key role of these *Lieder* in Schoenberg's path to atonality, despite their apparent lack of popularity, and perceived value.[34] Interspersed with the composition of the first string quartet, and standing between *Pelleas und Melisande* and the first chamber symphony Op. 9, the close study of their pc-sets (and their genera) highlights some of the organisational principles which the atonal works exhibit. The quick shifts in harmonic species for expressive effect (Category 3 in Table 9.2) in *Mädchenlied* and *Lockung* anticipate the lack of pc-set unity (which, in terms of pc-set genera, may be viewed as changing pc-set types) that can be found in *Erwartung* Op. 17, the singular atonal and chromatic genera in *Alles* and *Am Wegrand* respectively, find similar unity of pc-set structure within the first of the Op. 11 piano pieces, the Op. 19 piano pieces, within some of the short songs in the George *Lieder* Op. 15, and in many of Webern's pre-serial atonal works.[35] The Petrarch *Lieder*, and their initial use of the extended diatonic genus (the 7-35/34/32 genus), meanwhile appear to anticipate the first chamber symphony itself, given its well-acknowledged use of fourth-based chords and pitch-structures.[36]

Moreover, the identification of the extended diatonic genus and the signature genus in these *Lieder* demonstrates clearly and precisely the way in which the pitch-organisation of these works might be regarded as transitional. Thus, Schoenberg's path towards the 'atonal' pitch structures of Op. 11, 15, 16, 17, 19 and 21, is revealed as less a sudden freedom in which the resources of the chromatic scale became available to the pitch articulation of motivic ideas, but rather that groups

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34. Holzer uses the brief and 'blunt' character of Webern's comments on the Petrarch *Lieder* (Webern 1999: 30) to support a critical view of their transitional nature (see Holzer 2000). Nevertheless, Webern at least thought enough of them (and the remainder of Op. 8) to produce a piano transcription for Universal Edition. The fact that these transcriptions are often unplayable with two hands as written, may well have indicated his desire to ensure all the notes were available to the scrutiny of a critical audience. In any case, Webern's brief characterisation of them as 'transitional', may not necessarily indicate that he did not admire and value them.

35. For pc-set discussions which use 'classic' pc-set theory to point to an underlying unity of pc-set structure, see Forte 1981 for Op. 11 No 1, Forte 1973:100 for Op. 19 No 6, Forte 1992 for Op. 15, and Solomon 1984 and Forte 1999 for the early Webern.

36. See, for example, Schoenberg's own reference to this in respect of Op. 9 (Schoenberg 1978: 403). For a more extended discussion of tonal expression in Op. 9, see Dale 2000: 20-51.

of notes belonging to one of the three scale-forms were juxtaposed with other such groups belonging to other scale-forms. This stage is represented through the prevalence of the extended diatonic genus. A further, more advanced stage, represented by the emergence of the signature genus, finds that predominance of a new hexadal structure, 6-Z19 and its complement 6-Z44, the former of which is itself an extract of the harmonic minor scale fragments. The crucial point is that 6-Z19 is no longer a part of a predominant 7-32, but rather the one of the predominating constructs which spawn new seven-note 'scales' (such as set 7-21, prevalent in some of the Opp. 6 and 8 *Lieder*, and 7-22 which was found to be less so), alongside eight-, five- and four-note scalar fragments. The fact that this genus, based on sets which have been identified as key components in Schoenberg's atonal music, appears frequently within, and at times dominates, the matrices of these works underlines the importance of these works in shaping the way in which Schoenberg's pitch-structures would evolve.

9.3.5 Pc-set genera as theory: the deconstruction of pc-set theory

The previous section (Section 9.3.4) has presented the case that genera theory provides a context for the pc-set relations within a given segmentation, through its capacity for defining non-pc-set elements in pc-set terms. For example, the importance of the major scale, the combined scales and the non-scalar constructs in various works studied here, was depicted in terms of a comparison of the 7-35+ genus, the 7-35/34/32 genus and the 6-Z19/44 genus. Thus, in relating pc-sets, as components of pc-set theory, to constructs which are well-formed outside of pc-set theory (such as major scales, whole-tone scales, augmented triads etc.), it generates a context for pc-set theory that extends beyond its intrinsic jargon. It may well be the case that these genera can be used to similar effect in studies of other music from the transitional period, although of course *Set Manager* has been designed so it is not confined to these constructs, and so the analytical process can seek to address other theoretical issues by developing genera that have been appropriately designed. This aspect of the theory has given rise to two theoretical issues that have underpinned much of the preceding discussions and which engage the question as to 'how can pc-set genera theory mean'.[37]

9.3.5.1 A comparison of the set complex with harmonic species

The third category of generic process (illustrated by *Mädchenlied, Lockung* and, to a lesser degree, *Voll jener Süße*) where contrasting genera succeed each other quickly, confronts the assumptions

37. See Agawu's distinction between 'what' and 'how' a piece can mean. (Agawu 1991: 5).

of the set complex, which seek to identify a similarity of pc-sets in order to support a model of unity that can be criticised as being too positivistic. In the set complex, the similarity of pc-sets is defined by the inclusion-based relations of the Kh complex (together with the complement-related basis of the K complex) and, although the basis of this is replicated in the relations that underpin Forte's theory of genera and the rules for genera creation, the key difference is in the fact that a nexus set, or set of nexus sets, is generally assumed to be connected, whereas in genera theory the differences are foregrounded. The analytical usefulness of the genera system consists of the fact that it provides axioms (the genera themselves), the differences between which become the analytical variable from segmentation to segmentation. Moreover, as Forte's model of genera shows, the axioms themselves are deemed to represent non-pc-set phenomena (such as augmented, chromatic etc.), although the way in which Forte's rules for genera formation represents these elements has been challenged by some.[38] Through the generalising of genera and genera systems, the current study has afforded genera theory sufficient freedom to represent the sense of opposition between diatonic and chromatic, octatonic and chromatic etc., where the definitions of such oppositions remain in the control of the analyst.

The concept of unity that would have been suggested by a set complex (held together by a group of nexus sets) therefore is not represented in these *Lieder*. On the contrary, the interpretation of the pc-sets and their genera suggests a confrontation between the different set-types that represents the harmonic species in these works (albeit supported by the stability of the amalgamated genus of 7-35/34/32). A key conclusion of the current study is that it is in this direction that the future of pc-set analysis lies: in identifying a common practice of genera of pc-sets that recur in late nineteenth- and early twentieth-century music. From the viewpoint of Schoenberg's style, it moves away from establishing 'unity' as the principle underlying set-class analysis, towards an association of harmonic species with certain constructs which are external to pc-set theory, together with an underlying contrast between segments.

9.3.5.2 *On finding the 'perfect' genus*

The consistent use of *Set Manager* in Opp. 6 and 8 has provided some evidence which confronts Parks's argument (described in Chapter 4) that represents the process and objective of pc-set genera as one of matching segmentation with genus as closely as possible; engendering 'genus models capable of providing a good fit with any musical object's pitch constructs, in many cases a

38. See Ayrey 1998: 175 or Kennett 1995.

perfect fit'.[39] On the evidence of the current analyses, where some twenty-thousand genera were created from the intersection of all combinations of two K* complexes and checked against segmentations, few segmentations were completely exhausted by a single genus. In the cases where a single genus exhausted all sets, then such a genus would typically consist of more than 150 members (which represents over three quarters of all sets). The same tended to be true of the genera which had the most 'hits' and, on many occasions, genera like those based on 9-11 (156 members) or 9-7 (158 members) had the most hits in a segmentation. Moreover, even if one could identify a genus that was perfect, perhaps consisting of a union of two or three K* complexes, then such a genus would not necessarily relate to other works – it would be segmentation-specific. After all, the balance of the generic profiles of the works examined here, have tended to differ between sections, let alone complete works. If the model's properties – the perfect genus – are simply the embedding relations of the union of a number of K* complexes, then the objective of rendering the model 'meaningful in some sense such that we could extend its positive analogy to the object',[40] has not been fully realised. Indeed, such a model would be as positivistic as the set complex, which by definition is piece-specific. The evidence of the current study therefore suggests that the 'perfect genus' is a chimera when confronted with the pragmatic task of analysis. The analyses presented here suggest that (in terms of the more simple genera) it seldom exists, and even when one might look to the union of several genera to identify it, then there are so many such combinations that, even if one could determine a rationale for the most succinct (or most convincing or least complex) combination then it would be too segmentation-specific to be useful in providing a model which could relate to models of other works.

For this reason, this study has focused upon a relatively small number of genera which either represent familiar external constructs (such as the octatonic, whole-tone or major scale) or are constituted in some way which encapsulates some known aspect of set theory (such as the signature genus of the 4-19/17 genus which recurs in the atonal repertoire from time to time). It is expected that, through the broadening of the use of *Set Manager* to other genres and compositional styles, other genera will be developed. The role of the K*/Kd genera system in this is, of course, fundamental, in that it is capable of pointing to simple genera which commonly

39. Parks 1998a: 212.

40. As quoted earlier (Chapter 3: 85) in reference to Parks (Parks 1998a: 212).

recur.[41] In the long term it would appear probable that one of two likely scenarios might emerge. In the first scenario, a number of genera, like the signature genus, the 7-35/34/32 genus, or perhaps genera like G12, G5 and even G4, would emerge as predominant because of their prominent (defined by means of the Squo) recurrence in certain genres of works. Recurrence of such genera, which would exhibit internal structures that could be captured in some way while still holding an association with an external construct, would form the basis of an overall theory of atonal music. In an important sense this echoes Forte's overall approach, in that the generic profile of a work presents it as a set of differences between the performance of a set of genera, although it also contrasts Forte's position in that, where he views his own twelve genera as being sufficient, the current study (through *Set Manager*) advocates the generalisation of genera.[42] In the second scenario, no consensus would emerge (in terms of consistency of generic profiles) between works and indeed genres. This in itself would represent a body of evidence that would support the contention that pc-sets (and pc-set theory in general) are themselves too context-specific to allow generalisations to be made, and that they therefore represent an insufficient structuring principle in the organisation of pitch-class structure in post-tonal music. The latter seems unlikely, as the extended studies of Kennett and Parks, which have addressed specific genres pointed to the emergence of prominent genera, while this study has also suggested that three or four genera recur prominently in these transitional works. Future studies, which might compare these results with a similarly detailed study of some of Schoenberg's atonal pieces, would be required to fully substantiate this claim, however.

9.3.5.3 A final examination of segmentation

A significant problem for genera theory has been highlighted by Russ and others, in respect of the interaction between segmentation and the Squo (which in turn informs the reduction process and

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41. As an example which has been mentioned from time to time, consider the case of the K* complex of 7-21. This set is one of two heptadal sets which contains both 6-Z19 and 6-Z44, but it also contains the hexatonic set 6-20, and sets such as 6-14, 6-15, 6-16, 6-31, which recur frequently in this and other atonal works (see for example *Alles*). Yet this study has generally preferred the signature genus, on account of its obvious affiliation with the 7-35/34/32 genus, and that genus's association with the diatonic aspects of these works. The signature genus isolates 6-Z19 and 6-Z44 themselves, generating a sense of the independence which those sets develop in this repertoire. In another genre, where the extended tonal genus is less prominent itself, the genus based on 7-21, representing an *alternative* to the harmonic minor scale 7-32 or the 7-35/34/32 genus, might be a more appropriate choice for the PGS.

42. This does not preclude the possibility that, amongst all genres, Forte's twelve genera may indeed prove the (twelve) most fruitful, although the current study suggests in the genre of Schoenberg's Op. 6 and 8, this is not the case.

the interpretation of a generic profile), in that its calculation is critically dependent upon the segmentation, and on some occasions the addition or removal of a single pc-set might generate a substantially different reduced matrix.[43] The speed with which *Set Manager* recalculates segmentations confirms Russ's and Kennett's finding that the prioritisation of the genera through their Squos will in some cases have a significant effect on the generic profile, dependent on which sets are removed. It is clear, therefore, that the relationship between segmentation and generic profiling is much more critically dependent on the constitution of the former than that between segmentation and set complex.

The analyses in this study have sought to offer clear segmentation objectives and a degree of consistency within each analysis, yet this does not sufficiently address Russ's concerns. Three strategies have been used in the current analysis (supported by *Set Manager*) to ensure that the risk of a flawed generic interpretation on the grounds suggested by Russ is minimised. Firstly, several genera systems have been used in order to compensate for anomalies that might arise between a given segmentation and a particular genera system (such as those alluded to by Ayrey). The interpretation thus attempts to arrive at a consensus amongst the separate genera systems, reducing the quirks that might arise from a singular system. Secondly, the Squo scores have been examined critically to ensure that the analysis never simply accedes to relying on the system to generate the correct 'answer' to an analytical problem. The results it generates have been regarded as a recommendation, not a solution, and are therefore reconciled with the segmentation through discussion. *Set Manager* has been designed to facilitate calculation with a view towards affording the analyst more time to interpret results, and to reconcile them with intuitions and other theoretical perspectives. Finally, *Set Manager* allows distinct segmentations to be checked quickly, and so passages in which the generic profile is less than clear, and those in which small differences in segmentation can have a major effect on the Squo results can be examined from the viewpoint of different segmentations. In such cases, further investigation in respect of the interaction of segmentation and genera system might further illuminate the reasons underlying the issue, and this level of detail may well provide a focus for the analytical discussion.

43. See Russ 2000: 243-244. Russ takes an example from Mawer's genera analyses of Milhaud (Mawer 1997) and proposes relatively minor alterations to the segmentation to generate some quite different results in the generic profile suggested by the reduced matrix.

9.3.5.4 *Future directions for generalised pc-set genera*

One of the more useful aspects of *Set Manager* is its in-built capacity to cater for the 'future directions' of pc-set genera and set analysis, by allowing the user to save genera and genera systems to the database and direct his/her analytical enquiry to any repertoire. Thus, it is hoped that it will become an enabler for future research. Possible outcomes were speculated upon in Section 9.3.5.2, but one of the more interesting and potentially fruitful areas of genera development would be, following Forte's work with the trichordal progenitors, to attempt to create a similarly well-constructed and cogent set of genera based on tetradal progenitors. Given the role of four-note chords in the development of Schoenberg's theory of harmony alongside the way in which this study has depicted the manner in which tonal process is represented as an aggregation of such harmonic entities, this might well provide a useful genera system for analysing Schoenberg's transitional music.

Although the functionality and potential analytical scope that *Set Manager* embraces is significant, there are numerous ways in which it is clear that the program itself, and indeed the associated notion of generalised pc-set genera, could benefit from further development. One aspect of generalisation not used in the current study is that of the Squo calculation which is used to order the genera in a given system in terms of significance.[44] For example, Kennett's POF, which was briefly described in Chapter 4 and which the program is able to calculate in the *Genera* window, could be used as an alternative means of ordering the genera to that provided by the Squo. Reduction could then be carried out on genera which had been ordered using the POF, generating some, no doubt, very different results. The prioritisation process itself would thus become a variable whereby one could use either the Squo or POF, or indeed any other formula for which an algorithm could be formed. Nevertheless, some form of comparative study would have to accompany such a development, and this could be a potentially fruitful area of future research.

Another important aspect of *Set Manager*, touched upon in the previous section, is that of data input and segmentation. One of the more basic enhancements would be to enable note input

44. Although the idea of allowing the user to configure and customise the Squo calculation was considered during the course of the study, it was decided that the addition of a further variable may have added too much complexity to the program. In terms of the research, it may have resulted in deflecting the focus from understanding the effects of the other generalisations, which the research (and the computer program) had introduced. It would have thus increased the complexity of the analytical results, and rendered comparison with existing systems less meaningful.

from a midi source, a functionality which indeed Kennett's program *ffortissimo!!* includes.[45] If the program were able to read data in directly from a music processing program, such as *Finale* or *Sibelius*, then the harmonic block-by-block segmentations could be done with a rigour and speed that could furnish some very provocative results in terms of analysis of pc-set genera. Further research into segmentation strategies could be carried in tandem with automated data entry of this form, and could significantly change the way in which pc-set analysis is done in future. Nevertheless, the current study suggests that the one very important factor in such research would be to ensure a high degree of flexibility in the way in which the program would handle segmentation, allowing the user maximum control over what program would do. Such automated data-entry is now theoretically possible (although difficult) with the music-processing program *Finale*,[46] and because of the potential for such entry systems to quickly rearrange different segmentations of the same passage, this functionality could support research towards creating a sufficient set of rules for segmentation.

9.4 *The interdependence of the perspectives*

The three perspectives presented in this study might be regarded as interdependent with each other: Schoenberg as theorist confronts the objective model offered by pc-set theory and its genera through the *Lieder* of late 1903-1905. The harmonic analyses show that, in terms of Schoenberg's own theory of the regions, the works cohere, confirming that 'tonality' in the specific sense understood and taught by Schoenberg is still present in these works. The nature of the extension to harmony (extended tonality) has been the focus of many of the harmonic discussions here, yet harmonic extension has often been shown to have a motivic aspect: not only does the ongoing developing variation modelled by the motivic analyses play a role at times in defining the character of the harmony, but on occasions the harmonic structure behaves in a motivic manner, and one can cite many instances where chord progressions within a short passage

45. This seemingly simple enhancement is made difficult because of the platform chosen for the program. That is there is no direct support for MIDI in Visual Basic 6, which is in fact due to the lack of high-level support for MIDI commands in the Windows API.

46. This has been made possible by the fact that Coda Music, who design, manufacture and support *Finale*, now supply the *Finale PDK* – a developer's toolkit, which enables the design of 'plug-ins' (mini-programs that operate within another program) that can access the data in a *Finale* file from within *Finale*. Such a plug-in could link with *Set Manager* to store data in the latter's database. The plug-in could, equally, receive and display the output of any processing that *Set Manager* does, through *Microsoft's ActiveX* component model. At the time of writing, although the popular program, *Sibelius 2.0*, includes a scripting language *ManuScript*, this is currently insufficiently powerful to allow this functionality.

anticipate the regional structure of the whole. In addition, Schoenberg's harmony has a post-tonal aspect. The symmetry of the regions mentioned in respect of Chapter 3 has, on occasions, been reflected in the choice of regions used in the works.

From the viewpoint of the motivic analyses, it is clear that they articulate Schoenberg's connection of developing variation and coherence (as in *MI*) on their own, yet at times (such as the *Traumleben* opening, the *Mädchenlied* opening and the augmented triad motif of *Wenn Vöglein klagen*) they also interact with harmonic structure by articulating harmonic constructs. They also express symmetries and transformations which are within the purview of pc-set analysis. Meanwhile, it is clear that many motivic connections are more easily understood within the pc-set analysis, and these are not necessarily conveyed by Schoenberg's descriptions of developing variations. The following section will offer a summary of how the three-part analyses reconstruct the compositional path that Schoenberg may have adopted.

The first two *Lieder*, bearing the same date, hint at the scope of the *Lieder* which follow – both are initially conceived for piano and voice; both are based around the same E major tonality (in which Neapolitan F plays an important role in their respective recapitulations); both highlight the main regional disposition of the work in their respective opening phrases; and both make use of a similar sequence of genera. However, they differ, in the main, in terms of their use of motif. In *Natur*, a single phrase functions as recurrent motif, *Grundgestalt* and instigator of variation and developing variation, while in *Traumleben*, the sectional structure is articulated by melodic phrases underpinned by motivic cells forming an analogy for the intimacy of the transparent, predominantly homophonic texture of the work.

Although this distinction between motivic processes was to dictate in broad terms the pattern for the Orchestral *Lieder* of Op. 8 as distinct from the *Lieder* for voice and piano of Op. 6, the detail of the analyses suggests both processes are in evidence to a greater or lesser degree in all of the works, while other processes (such as those identified in the summary of genera) appear to progress in approximate correspondence with the chronology of their composition. The following *Lied*, for example, *Verlassen*, adopts a more thematically-oriented approach to its motivic organisation, that confronts a homogenous regional structure which is based on the harmonies established at the opening. The pc-set analysis also highlights an underlying 'connectedness' in the pitch-class organisation that, in terms of the generalised pc-set genera, emerges as a singular genus of sets. In the context of the other works of this period, each of these factors – the thematic motifs, the pc-set connectedness and the singularity of genus – is unique to *Verlassen*. The developing variations of *Ghasel*, composed a month later, point to an even more sophisticated use of cell-like motivic material than found in *Traumleben*, which it also resembles in terms of the schema of pc-set genera as well as the principal tonal areas it makes use of (E and F), although their roles as main and supporting regions are reversed.

The Petrarch *Lieder*, the composition of which was begun in April 1904, represent a significant departure in style from the previous *Lieder*. Already, two orchestral *Lieder* had been completed in a fully orchestrated form, and Schoenberg must have at some stage contemplated that the set of orchestral *Lieder* would be completed with settings of Petrarch texts. Whether at this stage he had determined the number of *Lieder* each group might have is difficult to say, yet Schoenberg's obsession with numerology suggests that he may well have felt that the eight *Lieder* for piano and voice that constitute Op. 6 would be balanced by the six orchestral *Lieder* that constitute Op. 8.[47]

Nie ward ich, which has the densest textures of all the *Lieder* examined in this study, and is arguably the least intuitively appealing of the three Petrarch *Lieder*, is revealed as the most complex and sophisticated motivically in that, although its motifs are thematic, it also exhibits strong evidence of on-going developing variation that links the numerous motif-forms. Its regional structure is also somewhat unconventional, in its avoidance of the key in which it eventually cadences, and the wide range of regions of which it makes use. Schoenberg's own retrospective view of it is perhaps reflected in his correspondence with Zemlinsky over the first performance planned for 1913,[48] suggesting his view of the work was somewhat ambivalent.

If *Sehnsucht* demonstrates the influence of Mahler through its choice of text, its modest proportions and its gentle triple time, then the developing variation which has been found in the Op. 6 *Lieder* (in particular *Traumleben* and *Ghasel*), along with its choice of pc-sets (in particular 6-Z19), is an equally significant source of influence. The Mahler influence sets *Sehnsucht* well apart from the other *Lieder* in Op. 8, yet the way in which it makes use of developing variation is very much in the Op. 6 tradition. Its pc-set genera (and the predominating influence of the

47. This numerology is exemplified, perhaps more obviously, by later compositions such as the fifteen George *Lieder* of Op. 15 and the 'three times seven poems from Albert Giraud's *Pierrot lunaire*' which constituted Op. 21.

48. See Holzer 2000: 87-88. Holzer notes that Zemlinsky proposes to perform three of the Op. 8 set, including *Nie ward ich* as the sole Petrarch *Lied* in his selection. The fact that Schoenberg suggests the other two Petrarch *Lieder* in its stead, has been argued by Holzer to imply that Schoenberg had a clear preference.

extended diatonic genus) suggest alliance with the Petrarch *Lieder*, although the octatonic, alongside the emergence of 6-Z19, recalls the early Op. 6 works like *Verlassen* and *Traumleben*. This is interesting in light of the position of *Sehnsucht* as the last of the Op. 8 *Lieder* to be written. With five orchestral *Lieder* completed by the end of 1904, and evidence of another Petrarch setting in fragmentary form,[49] it is at least conceivable that Schoenberg had yet to determine the precise contents of his Op. 8, and that no particular thread links *Sehnsucht* to its larger-scale neighbours in the set.

Alles perhaps represents a minor turning point, in that it is the first work studied here in which an atonal genus predominates throughout. The wild leaps and awkward range of the vocal part ensure that its intuitive attraction remains low, despite a well-crafted piano texture which aptly captures the sense of mystery that surrounds Dehmel's text, and although its tonality can be traced in general terms around the key of A♭, the pc-set analysis reveals the significance of the signature genus within its harmonic species. The motivic analysis is concentrated on motivic cells (such as the semitonal pair), rather than larger motif-forms. Perhaps this work could therefore be regarded as playing the same role in Op. 6 as *Nie ward ich* plays in the Op. 8 set – that of the experimental, if not totally successful, work.

Am Wegrand is perhaps somewhat more accessible and assumes a thematic orientation in which developing variation plays a role: not only can it be shown to link the various motif-forms, but it also underpins the motivic process of the accompaniment. Its predominating genus is the chromatic genus which, like in the case of *Alles*, in itself suggests a uniqueness. Yet, as the harmonic analysis reveals, compromises are made to its 'modernity' through the assertion of a dominant which (on account of its prominent position at the end) must be regarded as structural.

This aspect, as noted above, links *Am Wegrand* with *Lockung* and *Mädchenlied* (all three of which, after all, were completed in October 1905). The two final works might appear to form a pair, on account of the light-hearted character of their respective texts and a degree of similarity in the use of developing variation, along with the passages which exhibit quick changes in their harmonic species, yet there are some marked differences. The relatively conventional harmonic style of *Lockung* is confirmed by the genera analysis, which hinted at the overall predominance of the

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49. A fragmentary sketch for *Was thust, was denkst du, Geist?* can be found in Sketchbook I which contains sketches for 1904-5. (See Schoenberg 1981b: 259). Still another fragment exists for a fifth Petrarch setting (*O süße Blick', o Wörtlein klug gewendet*) in Sketchbook II, which probably dates from 1905-6 (See Holzer 2000: 65).

'extended diatonic' genus. On the other hand, the predominating genus of *Mädchenlied* is the augmented genus (G4), with the atonal genus (the 4-19/17 genus) offering a marked influence.

This view of evolution, similarities and differences between the completed *Lieder* which constitute Opp. 6 and 8 directly confronts Street's attempts to construct an underlying narrative which rationalises Schoenberg's selection of text.[50] Rather than a set of connected *Lieder* for which some unifying or narrative key (or set of factors which point to a 'clandestine form of erotic emplotment' which Street attempts to uncover)[51] can be constructed, as has been more convincingly argued in respect of, for example, Op. 15,[52] the Opp. 6 and 8 *Lieder* have been revealed by these analyses as a disparate group of experiments, in all probability assembled to suit Schoenberg's desire to publish these works.

Nevertheless, the detail which the analyses have uncovered, framed in terms of the perspectives described here, serves to demonstrate the ways in which these *Lieder* articulate not just the theoretical ideas which Schoenberg's writings have sought to explain, but also the theoretical framework upon which much of twentieth-century music has been founded.

50. Street 2000: 111-112. This article was referred to, more generally, in Chapter 1: 14-15.

51. Street 2000: 111.

52. See Brown 1993.

Bibliography

The following abbreviations are used in the text of the dissertation:

FMC	*Fundamentals of Musical Composition* (Schoenberg 1967).
HL	*Harmonielehre* (Schoenberg 1978).
MB	*Models for Beginners in Composition* (Schoenberg 1942).
MI	*The Musical Idea and the Logic, Technique and Art of its Presentation* (Schoenberg 1995).
SFH	*Structural Functions of Harmony* (Schoenberg 1954).
SI	*Style and Idea* (Schoenberg 1975).
StrAM	*The Structure of Atonal Music* (Forte 1973).
ZKIF	*Coherence, Counterpoint, Instrumentation, Instruction in Form* (Schoenberg 1994).

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